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MONACO MOTOR BOAT MEETING A GREAT SUCCESS.

MONTE CARLO, April 10.—A fleet of sixty-six motor boats furnished by France, Italy, England, Germany and Switzerland were gathered together in the magnificent enclosure on the Condamine when the Prince of Monaco the other day opened the third annual motor boat exhibition. The exhibition ground is the one known to visitors to previous Monaco meetings, admirably fitted with lifts and traveling cranes and stepways to the water's edge, where all the boats are exposed in the open air, with the steep cliffs of the town as a background and the blue waters of the Mediterranean in the fore. In numbers, quality of the craft and attendance of visitors the two previous meetings were easily beaten.

It is estimated that the boats gathered together in the bay represented a value of \$400,000, and the estimate is certainly not

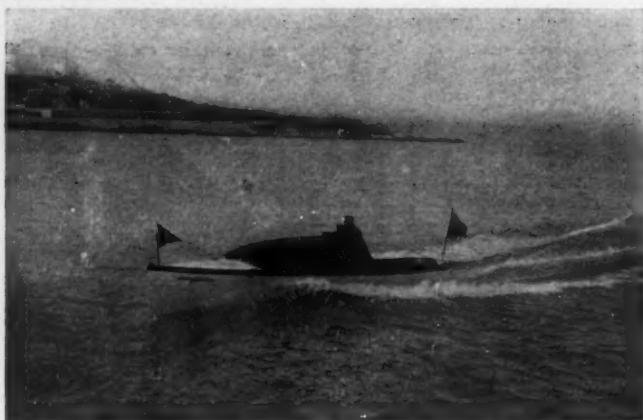
exaggerated, for never has more care been bestowed on the construction and finish of motor boats—if one can so designate craft measuring between fifty and sixty feet, weighing six or seven tons and carrying motors of 600 horsepower. One craft alone, the Mercedes-Paris, is valued at \$16,000.

The most striking feature of the meeting was the enormous advance made by Italian constructors, some of the finest boats on exhibition coming from across the Alps. French sportsmen who had formerly feared England as a competitor are now of opinion that their Latin cousins will set the pace—and a hot pace it will be.

Naturally the racers attracted most attention, and there were, indeed, some splendid boats among the fourteen craft entered in the three racing divisions. Four boats were shown in the



MONACO HARBOR, SHOWING LAUNCHING RUNWAY.—THE NAPIER-SIOLA IN THE CRADLE.



FIRST TRIAL OF THE "QUICKSILVER" AT ANTIBES.

26-foot class, all of them of French construction except Baron de Cater's *Seasick*, which has been engined by Itala. The craft were: *Antoinette IV*, hull by Pitre, engines by Levavasseur; *La Rapière II*, hull by Fellier & Gerard, engines by Panhard-Levassor; *Vol au Vent*, built by Pitre, engined by Hotchkiss; *Seasick*, built by Tellier, engined by Itala. *Antoinette IV* is a boat that will be watched with much interest. She has a sixteen-cylinder Levavasseur engine, and is fitted with two rudders, one to the left and the other to the right of the propeller. Trials made on the Seine before sending the boat south proved that the double rudder caused her to answer very quickly to the helm.

In the 39-foot section there was a more international display. S. F. Edge entered his *Yarrow Napier* driven by two six-cylinder motors of 140 horsepower each. Lionel de Rothschild had a new Napier boat, the *Siola*, with an almost flat-bottomed wooden hull built by Saunders and six-cylinder motor by Napier. The *Cafit*, owned by Vincenzo Florio, built by Tellier & Gerard and engined by Itala, attracted considerable attention by reason of her two four-cylinder motors of 120 horsepower each, mounted side by side. The two motors form one group, but are at the same time independent, each one having its carbureter, its magneto, and its oil and water pumps. The two, however, are mounted on the same crankcase, the crankshafts being distant from one another 45 centimeters. The cylinders are of 180 mm. bore.

Fiat XIII, entirely of Italian construction, was another exceptionally fine boat. She has a large beam and much greater free-board than has hitherto been found in this class of boat. Her propeller is only of moderate size, but the pitch is very deep. In her recent trials she traveled at more than 31 miles an hour. In the third series for boats of 39 to 59 feet four representa-

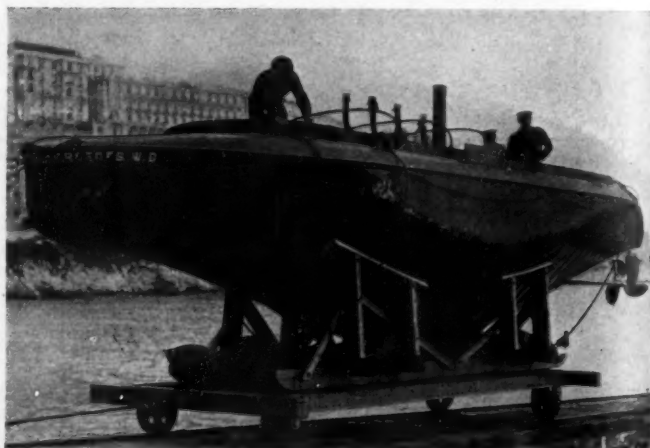


GENERAL VIEW OF MONACO AUTO BOAT EXHIBIT.

tives were found. One of the French favorites is the 45-foot *Dubonnet*, last year's champion. The hull, built by Tellier, remains untouched except for a little strengthening here and there. The 300-horsepower Delahaye motor which attracted much attention at the last Salon, merely on account of its enormous size, was found too heavy for such a hull, and has been replaced by two four-cylinder De Dietrich motors in tandem. A clutch unites the two motors, allowing the second to be started and afterwards connecting the first up to it.

The *Mercedes W. D.* is the most curious craft of the exhibition, the hull being designed on the lines of a one-rater sailing vessel. As a sea boat she gives excellent results, but even M. Jellinek-Mercedes admits that she does not come up to expectations in the matter of speed; and when the King of Sweden stopped to look more closely at her unusual lines the owner declared with a smile that she was the "calculation of an engineer." The French element interpreted it "miscalculation," and while ridiculing the design expressed surprise that the Mercedes concern should risk the chances of a splendid motor to such a hull. Another Mercedes craft entered in the same category is the *Mercedes D. L.*, with a steel hull, carrying a six-cylinder motor, but too heavily built. The largest was the *Delahaye*, 59 feet long.

In the matter of propellers this year there is no uniformity, though the two-blade type, numerous last year, has entirely dis-



"MERCEDES W. D." IN HER CRADLE ON THE WAYS.

appeared. The French have adopted a huge hub with comparatively small blades and not too much thrust, while the Italians have frequently long-bladed propellers, fantastically finished off at the end. The *Florentia III*, one of the fastest cruisers, is fitted with a very small propeller, while the Italian racer *Cafit* on the other hand has double propellers of large area and different shape. A departure has been made from orthodox lines in the placing of the rudder, both the Panhard boat *Rapière* and Baron de Cater's *Seasick* having it fixed at one side of the stern, slightly in advance of the propeller. M. Tellier claims that the action of the screw on the rudder is thus lessened and steering is easier.

Disaster has not been long in falling on the Monaco meet, two auto boats having already been destroyed. *Fiat XIV* and the *Rapide*, two Italian cruisers of 24 and 16 horsepower respectively, were being towed to Monaco when under the influence of the gale they broke loose and went ashore. The Fiat motor is intact, but the hull is reduced to matchwood. The auto-yacht, *Quand Même*, the only survivor of the trans-Mediterranean race, also had a narrow escape from being driven on to the rocks.

A. C. A. APPOINTS FOREIGN ATTORNEY.

Members of the Automobile Club of America have been notified that the club has appointed Major F. A. Mahan, 51 Avenue Montaigne, Paris, to act as attorney for the club in France. Members touring in Europe may apply, if the necessity arises, to Major Mahan for legal advice and assistance, for which he will charge a reasonable fee.

FUNCTIONS OF VALVES IN FOUR-CYCLE MOTORS.

In the internal combustion automobile motor the original source of energy is the inflammable gas, composed of a mixture of vaporized gasoline and ordinary air, which is usually formed outside the working cylinder, in the carbureter. The explosion of this gas, upon ignition, releases the energy which imparts the power impulses to the piston and, by the interposition of the connecting rod, produces the rotary motion of the crankshaft. It is evident that the gas or charge must be admitted to the cylinder at predetermined intervals, confined therein while burning, and when it has done its work or become spent must be permitted to escape to the atmosphere to make way for a succeeding incoming charge. In the four-cycle motor, which is the type here referred to, these duties fall upon the inlet and exhaust valves which, actuated by the moving parts of the engine itself, open and close at fixed intervals with relation to the movements of the piston.

In order to show the arrangement and operation of the valves of a modern four-cycle gasoline motor, the drawing, Fig. 1, may be referred to. This shows a typical form of four-cycle engine—that is, an engine in which an explosion occurs at every fourth stroke of the piston, or every second revolution of the crankshaft—with valves of the type commonly called “mechanically operated” valves. A valve of this type is normally held tightly on its seat by a spring, and is opened at the proper time by a cam which raises a rod, known as a push-rod, which in turn presses upward on the lower end of the valve stem and so opens the valve. The exhaust valves are always opened by a cam or equivalent device, but a different method is frequently adopted for opening the inlet or admission valve. This will be explained later.

The cams that lift the valves must perform their functions at exactly correct and regular intervals with relation to the speed of the crankshaft; otherwise the motor will run irregularly or not at all. In a four-cycle motor of the type illustrated the cycle of operations commences with the first downward stroke of the piston. At the commencement of this stroke the admission valve must open, and it must remain open throughout the downward stroke to permit gas from the carbureter to be drawn into the cylinder by the suction of the piston. At the end of this suction stroke, during which the exhaust valve has remained closed, the cylinder is filled with gas. If the piston now commenced its upward stroke with the admission valve still open, the gas would, of course, be driven back through the open valve and into the atmosphere through the carbureter; but at the instant the piston finishes its downward stroke and (having drawn as much gas as possible into the cylinder) is about to commence the up stroke, the admission valve closes and remains closed while the piston makes the up stroke, and the exhaust valve also remains closed.

We now have the piston moving upward in a cylinder in which it is an air-tight fit, two valves closed, and also air-tight, and no other means of communication with the atmosphere. Under these conditions the gas is necessarily compressed into a space called the “combustion chamber,” practically an upward continuation of the cylinder bore, which, together with the passages leading to the valves, is sufficiently large to accommodate the gas at a predetermined pressure. When the piston reaches the top of its compression stroke and the gas is occupying the smallest space allowed by the design of the engine, the spark is made and explosion occurs about the time the piston commences to move downward for the second time. The ignited gas continues to expand as the piston descends, the pressure continuing to the bottom of the “power stroke,” as it is frequently called. During the expansion of the gases both valves remain closed, as on the compression stroke. At the end of this stroke the exhaust valve opens the only time during the cycle, allows the escape of spent gases which are of no further use, and would, if allowed to remain in the cylinder, retard or altogether prevent the next

upward stroke of the piston. The piston goes up with the exhaust valve open and the admission valve, of course, still closed; the burned gases pass out through the exhaust valve.

When the piston reaches the top of the exhaust stroke—the fourth and last stroke of the cycle—and can push no more gas out through the valve, the exhaust valve closes. There still remains in the upper part of the cylinder and in the valve passages a certain amount of burned gas. This dilutes, to a certain extent, the next incoming charge of combustible gas, and though this is an undesirable feature, it is usually considered less disadvantageous than any of the methods that have been devised with a view to ridding the cylinder of the burned gas.

After the exhaust stroke the piston starts again on a suction stroke with inlet valve open and exhaust valve closed, and this is followed again by the compression stroke with both valves closed, by the power stroke or explosion stroke with both valves closed, and by the exhaust stroke, with the exhaust valve open and the inlet valve closed, and so on, repeating the cycle as long as the engine runs.

As has already been stated, the inlet valves of some motors are not opened by the cam arrangement shown in Fig. 1, but are opened against the pressure of a spring by the suction of the piston on the intake stroke; or, more properly speaking, by the pressure of the atmosphere outside of the cylinder when the piston creates a partial vacuum in the cylinder. Such an inlet valve is

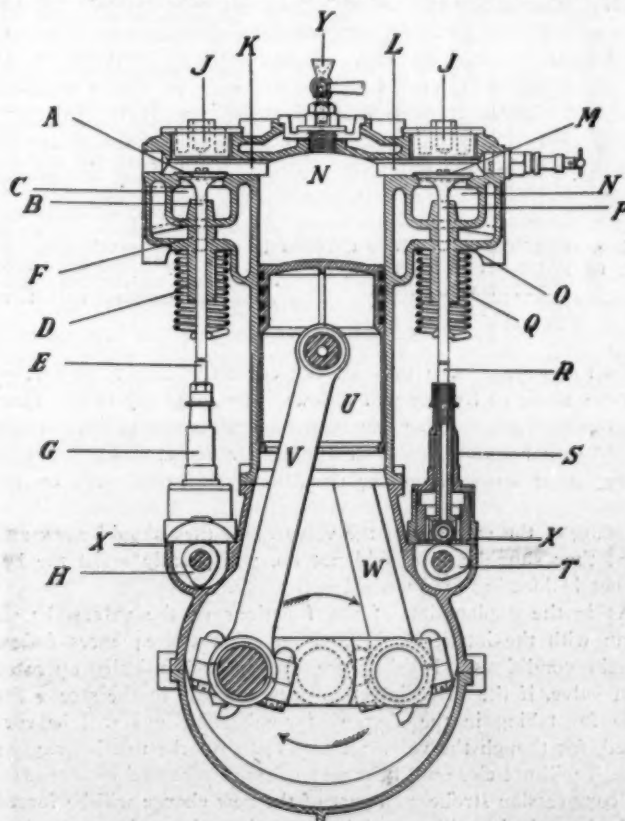


FIG. 1.—VERTICAL SECTION OF TYPICAL FOUR-CYCLE MOTOR WITH MECHANICALLY OPERATED VALVES.

A, exhaust valve. B, exhaust valve stem. F, exhaust valve stem guide. D, exhaust valve spring. E, exhaust valve push-rod. H, exhaust valve cam. G, push-rod guide. C, chamber communicating with exhaust pipe. K, exhaust passage. M, inlet valve. P, inlet valve stem. O, inlet valve stem guide. Q, inlet valve spring. R, inlet valve push-rod. T, inlet valve cam. S, push-rod guide in section showing bushing and screw and nut on top of rod for taking up wear. N, chamber communicating with inlet pipe from carburetor. L, inlet passage. J, plugs in openings through which valves may be removed. Y, compression relief cock. X, combustion chamber. XX, casings covering cams and lower ends of push-rods. Section of casing on inlet side shows roller on lower end of push-rod riding on cam and mounted in hollow square which forms lower end of push-rod. U, piston. V, W, connecting rods.

shown in Fig. 2, and is called an "automatic" valve. It will be seen that the pressure existing in the cylinder during every stroke except the intake stroke tends to keep the inlet valve closed; the spring is brought into active use only for closing the valve promptly at the end of the suction stroke. On the compression stroke the inlet valve is kept closed by the pressure of the charge; the pressure of the burning gas on the power stroke keeps the valves closed; and on the exhaust stroke, even though the exhaust valve is wide open, there is sufficient pressure to keep the inlet valve tight even if the spring was absent.

During the suction stroke the exhaust valve is prevented from opening by the fact that its spring is considerably stronger than that of the inlet valve and holds the valve firmly on its seat, notwithstanding the suction of the piston. During the compression and the explosion strokes the exhaust valve is naturally kept close on its seat by the pressure within the cylinder, as is the inlet valve; but at the end of the explosion stroke it must be opened by the cam against heavy pressure. Therefore the exhaust valve must always be mechanically opened.

If the valves are not made to open and close at exactly the

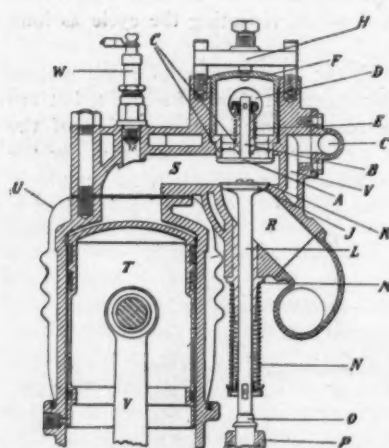


FIG. 2.—VERTICAL SECTION OF CYLINDER OF FOUR-CYCLE MOTOR WITH AUTOMATIC INLET VALVE.

A, inlet valve. B, inlet valve seat and stem guide cast integral. F, inlet valve chamber held in place by yoke H and set-screw. The removal of this chamber permits the removal of valve and seat. D, opening communicating with pipe from carbureter. E, inlet valve spring. J, exhaust valve. L, exhaust valve stem. M, exhaust valve stem guide. N, exhaust valve spring. O, top of exhaust valve push-rod. P, top of push-rod guide. R, passage communicating with exhaust pipe. S, passage for incoming gas and outgoing exhaust. T, piston. V, connecting rod. U, sheet metal water jacket. W, water space. G, water inlet. W, spark plug. In this motor the head containing valves is a separate casting bolted to cylinder.

right times—that is, if they are not correctly "timed" or "set"—various kinds of trouble will follow. The simplicity of the valve arrangement of a four-cycle motor is rather deceptive, for the troubles that follow incorrect timing are sometimes difficult to trace up, and sometimes the conditions are complicated by the presence of more than one disturbing factor. A thorough understanding of the working of the valves, how they should work and what they should and should not do, will greatly assist the beginner in locating his own valve troubles.

As in the explanation of the functions of the valves, let us begin with the intake stroke and see what consequences follow certain conditions. In the case of the mechanically operated inlet valve, if the valve is set to open too late in the stroke the time for taking in the charge of combustible gas will be curtailed, for though the valve remains open for the usual period of time, it will not close until the piston has commenced to ascend on the compression stroke, and part of the new charge will be forced back through the still open inlet valve into the carbureter. And the comparatively high degree of vacuum that is created before the valve opens causes the gas to enter with a sudden rush that is very apt to be disturbing to the carbureter. Under these conditions the engine will develop less than its normal power, owing to scanty charges and low compression, and the carbureter will give trouble.

In the case of an automatic inlet valve, late opening, with the same results, will be caused by a spring that is too strong; only in this case the valve will also close too early, so that the latter part of the stroke will have a tendency to reduce the pressure

of the charge below atmospheric—that is, to produce a slight vacuum—and the atmospheric pressure must be restored on the upward or compression stroke before normal compression can commence.

If the mechanically operated inlet valve commences to open too early the result will very soon be apparent. As the intake stroke follows immediately after the exhaust stroke, the too early opening of the inlet valve, occurring while incandescent gases are filling the upper part of the cylinder at a pressure that is still considerable, will permit some of these gases to pass through the inlet valve and ignite the gas in the pipe leading from the carbureter, causing what is known as "popping" in the carbureter. The burned gas is then drawn into the cylinder with the combustible gas, giving a weak mixture, difficult to ignite and incapable of exerting sufficient pressure, when it is ignited, to enable the engine to develop its rated power. If, as is most likely to be the case, the early opening is followed by an early closing, the charge will be cut down still further and compression will be low. With a mechanically opened inlet valve the valve is necessarily held open for the same period of time, whether the opening commences late or early, the time being fixed by the contour of the cam.

Automatic inlet valves are not subject to too early opening, because, even if the spring is weak, the pressure of the exhaust will keep the valve closed until the piston has descended far enough on the suction stroke to create a partial vacuum, when there will be no possibility of any flow of gas out through the inlet valve. If the spring is too weak the inlet valve will, if not stopped mechanically, open too far and at the end of the suction stroke the spring will not be able to close the valve until the upward stroke has commenced; thus part of the charge will be forced back through the inlet valve and the compression will be low and the explosion weak.

The period during which the exhaust valve remains open is fixed, as is the case with the mechanical inlet valve, so that early opening means early closing, and late opening late closing. If the valve opens too soon the pressure on the piston is relieved before the useful part of the stroke of the piston is over. The early closing will result in the retention in the cylinder of burning gases under a pressure which is slightly increased by the compression caused by the upward movement of the piston. Now, if the inlet valve is mechanically operated, it will open while there is hot gas in the cylinder under pressure, and there will be a flow of the residue of the exhaust out through the inlet valve.

If the exhaust valve is late in opening the piston will have to commence its upward stroke against an exceedingly heavy pressure, and this, of course, reduces by just so much the useful power developed in the motor. The late closing of the exhaust valve will result in some of the burning gas being drawn back into the cylinder at the same time that the new charge is entering by the inlet valve. In extreme cases this may cause pre-ignition and burning back in the carbureter; and in any case, the dilution of the new charge of gas will result in reduced power.

The speed of the engine—that is, the number of revolutions per minute—has an important influence on the valve operation. In a very fast running engine with an automatic inlet valve, the valve spring must be stronger than would be necessary for a slow running engine; for the valve must close rapidly and promptly. In actual practice, the exhaust valve is set to open a trifle before the explosion stroke is completed in order to give as much time as possible for the escape of the exhaust gas and to ensure a pressure not above atmosphere in the cylinder when the exhaust valve closes and the inlet valve opens. The inlet valve commences to open the instant the exhaust valve is seated, but no earlier, in order to avoid the escape of exhaust gas through the inlet valve, as already mentioned. With automatic inlet valves the exhaust cannot blow back into the carbureter. A mechanically operated inlet valve is usually set to close just at the end of the suction stroke.

PABLO BEACH HAS RACING, BUT NO RECORDS.

JACKSONVILLE, FLA., April 14.—Pablo Beach has been introduced, found desirable, and will be the scene of future speed automobile competitions. But even the most energetic work of William J. Morgan could not induce the high-powered flyers to make a second journey to Florida at this time. There was racing, some of it decidedly interesting to the participants at least, but the day is past when the general public sits up and takes much interest in touring-car events.

The Pablo course has width, hardness, and, from the view standpoint, is most excellent. From the lawn of the Hotel Continental, or from the long bridge which extends far out over the course and into the ocean, it is possible to have a grand view up and down the beach, of which six miles were used in the racing, though thirty miles are available. In the opinion of the experts, Pablo may not be quite as fast as Ormond, though it is not as shelly, is dryer, and possesses the same hardness as the stretch of sand further down the coast. It is possible to make the journey between Jacksonville and St. Augustine entirely on the beach, the journey from the latter place being of scarcely an hour's duration.

An incident of the meet that excited considerable though regrettable discussion involved Promoter Morgan and President Charles A. Clark, of the Jacksonville Automobile and Motor

Lamper, who did 5:08, defeating Mr. Adriance, of Poughkeepsie, by a half minute. Both gentlemen took part in the gymkana sports with the Hon. William Jones, of Macon, Ga., owner of a 20-horsepower Franklin, and others. Mr. Jones spoiled two tires and was out of everything. But his blood was fired, and he says

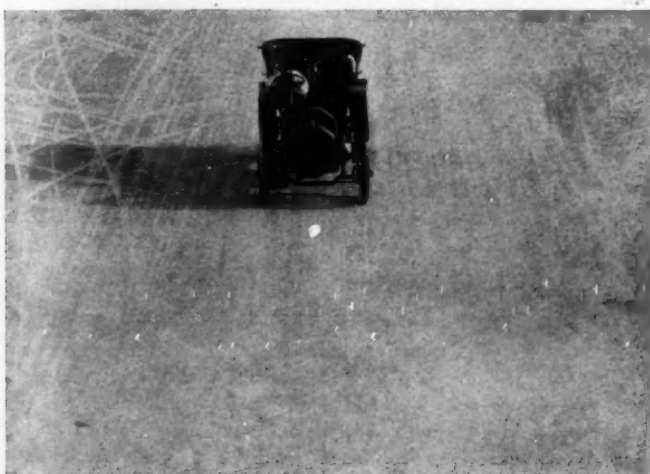


VIEW OF CONTINENTAL HOTEL AT PABLO BEACH.

he will have an American racing car for the Vanderbilt Cup race. In the water-carrying gymkana race Miss Dorothy Meyers won first honors, greatly to her own amusement and that of her father.

Thomas Flyer Started from Scratch.

The final race of Thursday brought sensations. Seven cars started with the 50-horsepower stripped touring Thomas flyer of Charles Creelman, of Atlanta, driven by J. A. Lander in the absence of Mr. Creelman, from scratch. Just after starting Lander ran over a big dog, which he killed. The accident cost him the race, as at the finish he was but seventeen seconds back of Charles F. Wheeler, of St. Augustine, in his 1905 Peerless. Lander was last two miles from the finish and haled down his field in the most sensational manner. Every advance was a battle royal for him, and he gained second by but a second over Mr.



J. A. LAMPER, 30-H.P. PEERLESS, MILE IN 1:43-5.

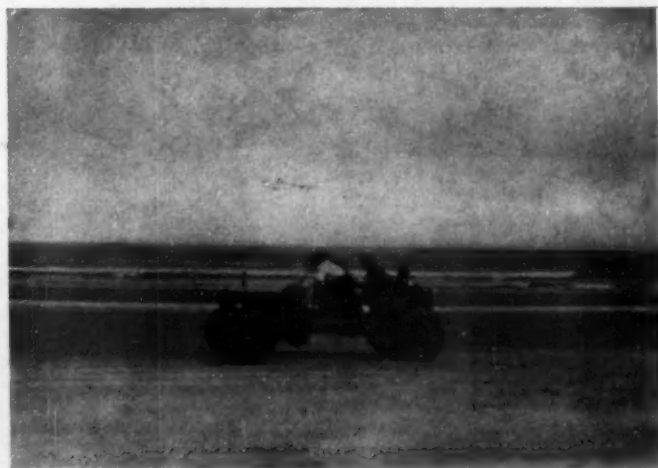
Boat Club. Mr. Morgan considered that he was not receiving proper support from the club and could not resist the temptation to append a facetious remark and then post a telegram which told of the inability of the president to be present. The latter wrote a letter that was hardly fit to print, and Mr. Morgan retaliated with one that invited his opponent to a fistic argument. There was talk of pistols and seconds, but wiser counsel may bury the affair. Alex Schwalbach, who did the handicapping, resented some criticism by Secretary Herbert Race, and once more the peacemakers had an opportunity of keeping the belligerents apart.

A Peerless Winner on Tuesday.

The times of the touring cars on Tuesday, the opening day of the meet, proved conclusively the speed of the beach, for J. A. Lamper, of Lynn, Mass., in his 30-horsepower Peerless, won a three-mile match race from William Adriance, Jr., of Poughkeepsie, N. Y., who drove his 20-horsepower Stevens-Duryea in 3:42. Mr. Adriance was beaten but one-fifth of a second. Later Mr. Lamper won the ten-mile handicap from scratch in 12:07.

Lamper Won Again on Wednesday.

Wednesday's races consisted of gymkana games and the five-mile championship of Florida. This event was won by Mr.



J. A. LANDER, 50-H.P. THOMAS, RECORD MILE :57 2-5.

Lamper in the 30-horsepower 1906 Peerless, with Mr. Adriance in the 20-horsepower Stevens-Duryea third, and Mr. Jones fifth in the 20-horsepower Franklin. The Thomas Flyer was scratch; the winner had a handicap of 2:50; Lamper had thirty seconds, Adriance a minute, while Jones had 1:45, and the others greater



MISS DOROTHY MEYERS AND HER PRIZE-WINNING WHITE.

distances. From the hotel every car could be seen coming from the six-mile point and finishing at the one-mile point, hundreds standing on the bridge and watching them pass under. Lander's time was 4:55, a record for stripped touring cars for five miles.

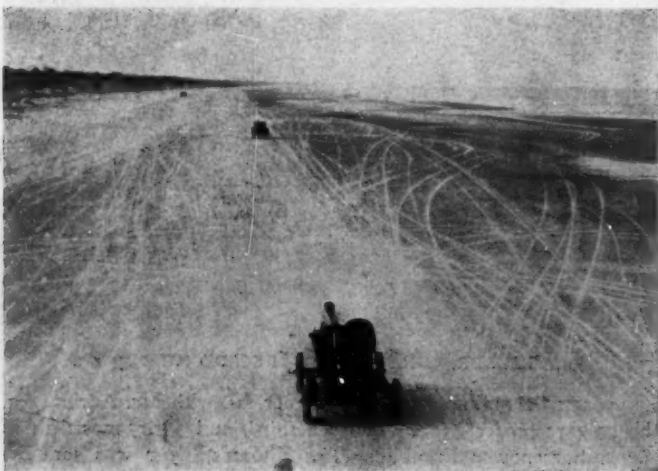
Mr. Adriance won the ten-mile open handicap for the Windsor Hotel trophy, from the 2:20 mark.

In the one-mile, best two in three, heat race the Thomas Flyer ran an inches finish in each heat with the Peerless of Mr. Lamper, the latter car winning the second heat in the fast time of 1:03 4-5 with tonneau and all fittings on. The Thomas took the first heat in 1:04 3-5 and the second in 1:05.

Wheeler's Peerless Took Both Handicaps.

The race closed Friday with two handicaps, one of a mile and another of five miles, both won by Charles Wheeler over small fields in his Peerless car, and time trials at a mile by J. A. Lander in the 30-horsepower Thomas of Charles Creelman. Lander, driving the car with four on board hanging by their eye teeth, did the mile in :59, and alone he did :57 2-5. Later in the day in a handicap he burst a crankcase and put a cylinder out of business. His best performance was the five miles in 4:55 in the five-mile handicap, as this fast ride was made from a standing start.

Kansas City has had an automobile wedding. Chauffeur Joseph Hatfield drove his white-ribboned car, containing his bride-elect, to the front of the court house in that city, and Justice Michelson tied the knot. By way of celebration, immediately after the ceremony, the bridegroom drove his car up the long stairway approach to the courthouse, where the happy couple were photographed.



WM. ADRIANCE, JR., IN 30-H.P. STEVENS-DURYEA.

TO WORK FOR SOUTHERN ROADS.

ATLANTIC BEACH, FLA., April 12.—The Hon. Ben L. Jones, of Macon, Ga., candidate for the Assembly, alderman, and a prominent politician in Georgia, owner of a big automobile business, president of the Macon Automobile Club, and proprietor of a Macon newspaper, was elected president of the Southern Motor Federation, an organization created to build good roads throughout the South and to bring about the construction of a great trunk line road from Richmond, Va., to Jacksonville. Mr. Jones will enter enthusiastically into this, and will have as his co-workers some of the greatest road builders of the country.

The Southern Motor Federation will work in entire harmony with the American Automobile Association, which the Macon Automobile has just joined.

The meeting was held at the Hotel Continental, Thursday morning, and all the prominent motorists in Florida joined in the movement without question.

The following officers and directors were elected: President, Hon. Ben L. Jones, Macon Automobile Club; first vice-president, Frank C. Beatty, Savannah Automobile Club; second vice-president, Col. Joseph P. Bryan, editor Richmond *Times-Dispatch*; third vice-president, George W. Vanderbilt, Asheville, N. C.; secretary, W. R. Rannie, Jacksonville Automobile and Motor Boat Club; treasurer, Edward Inman, of Atlanta, Ga.; directors: George W. Wilson, editor Jacksonville *Times-Union*; Clark Howell, editor Atlanta *Constitution*; J. H. Estill, editor Savannah *News*; Major W. A. Hempill; State Attorney-General Gilmer, Raleigh, N. C.; John B. Parkinson, F. E. C. A. A., Daytona, Fla.; W. A. McWilliams, president Board of Trade, St. Augustine, Fla.; Thomas W. Layless, editor Augusta *Chronicle*; John Anderson, Ormond, Fla.; Gunby Jordan, Columbia, Ga.; Mr. Gonzales, editor *State*, Columbia, S. C.; Charles K. Murray, editor *Landmark*, Norfolk, Va.; Hon. W. P. Brownlow, Nashville, Tenn.; R. S. Munger, Birmingham Automobile Club, Alabama.

INDIANA ROUSED TO ACTION.

INDIANAPOLIS, IND., April 16.—The next session of the Indiana legislature, which will convene in January, 1907, will be asked to enact good roads legislation, which, if passed, may mean a complete reorganization of the highway system of the state. There is a general feeling throughout the state that the old system is inadequate to accomplish the results necessary. At present roads are constructed by the various townships, and when completed, turned over to the county in which they are located for future care. Of the 1,014 townships in the state, many are not financially able to make the necessary improvements. On the other hand, after the roads are completed, a careless board of county commissioners may undo all the work accomplished by failure to keep the roads in condition, and there is frequently contention between the townships or counties in regard to roads that lie on county lines, and frequently the roads for half a mile on either side of the county line are left in bad condition.

At the last session of the legislature, Representative Yencer, representing a rich farming community, offered a bill providing for the establishment of a State Highway Commission, carrying with it an appropriation of \$5,000,000, and placing the care of the roads throughout the state under the control of the commission. The plan was hooted at and voted down without much consideration. There has been much discussion since that time, however, and it is likely the next legislature will have to consider a very similar measure.

The agitation for good roads, it is expected, will come more from the farmers than from automobile owners, although it is expected the automobile interests will take up the good roads fight after it is once started. For some reason the movement for good roads in Indiana has not kept pace with the growth of the automobile industry.

THE FLORIDA AEROPLANE EVENTS.

JACKSONVILLE, FLA., April 14.—The aeroplane feature of the Atlantic-Pablo Beach meet was one of disaster. On Monday, the opening day, Charles Hamilton soared aloft in the tow of automobiles, and then made a spectacular descent into the fringe of waves. The ascent was made in tow of two White steamers, property of H. M. Flagler. These, hitched side by side, were pulled together by the force of the giant aeroplane as it mounted higher and higher. Hamilton yelled early in the game to stop, and the spectators, hearing the snapping of wires and the breaking of bamboo under the mighty strain, stood spellbound, awaiting the certain finish of the daring air navigator. His cries to stop finally reached the ears of his mentor, Israel Ludlow, who was riding in one of the steamers. The two cars stopped, and then started as spectacular an airship descent as was ever seen. The huge kite plunged this way and that and then turned half over as it plunged straight down to earth. Nearing the beach it struck on one corner and turned partly over. Hamilton, from his seat in the center, was thrown out into the tangle of wires and bamboo and landed at the corner which struck. He was cut across the nose and his arm was caught in a tangle of bamboo



ISRAEL LUDLOW AND CHARLES HAMILTON.

rods and wires. "Senator" Morgan and Alex Schwalbach, who had raced down the beach about 200 yards, reached Hamilton, and, in water to their shoe tops, pulled him out. For a moment only he collapsed, and then walked away, smiling, his face covered with blood from the cut on his nose. The aeroplane was rescued and hauled up the beach away from the incoming tide.

As a spectacle the ascent was worth the price of a trip from New York. Successful it was without a doubt, for in the strong wind blowing Hamilton would undoubtedly have remained in the air at the end of the huge kite string indefinitely. In fact, he said to-night: "Even while the wires and bamboo poles were snapping and I realized I must be tumbling soon, I was figuring upon the picnic I would have sending down for grub and staying up all night. I could not steer the thing, and am going to get up something now to enable me to do so. But say, with that motor and those propellers I can drive the kite anywhere and at will. This trip was the best I've ever made, and I'm going to fix it up now and race Mr. Ludlow."

Dr. Israel Ludlow, of New York, student in the school of aeronautics, and tireless worker in the aeroplane school, was wild with delight over the way in which "No. 16" soared.

"Hamilton's trip proved a lot to me," said Mr. Ludlow, "and I am pleased. 'No. 17' will be a big improvement and I shall strengthen many parts which gave out to-day. I am satisfied that aeroplane navigation is not far distant, and that with a good motor we shall be able to mount from the ground and soar away

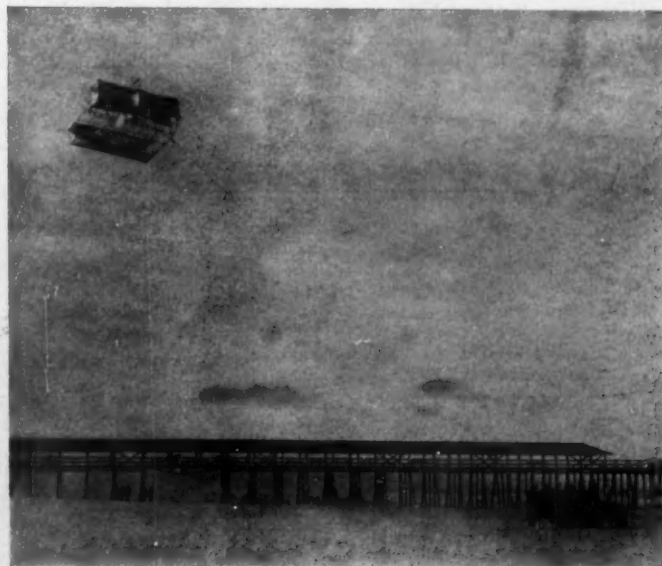


HAMILTON COMES TO GRIEF AT THE WATER'S EDGE.

anywhere. Each aeroplane has served its purpose, and each proves a theory. This ascension gave me a lot of knowledge."

Then on Saturday came the disaster to poor Ludlow. Again the two automobiles were utilized in getting the larger aeroplane into action. A strong south wind lifted the big kite easily, and it was soon over 200 feet in the air. A crash of the bamboo told of broken framework, and the collapse was in such manner that it prevented Ludlow from saving himself. Down he crashed to the beach, striking squarely on the base of his spine, with the aeroplane on top of him. As expeditiously as possible the injured man was taken to the Hotel Continental, then hurried to a train and immediately started for New York City, where it is now hoped that specialists of Roosevelt Hospital will be able to save his life, despite the injury to the spine that has left him partially paralyzed below the waist.

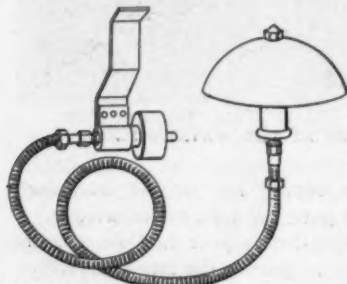
Referring to the aeroplane events, W. J. Morgan states that the flight of Ludlow was not a part of the official program. It was the original intention to engage Ludlow to make ascensions in a new motor-propelled dirigible aeroplane which he claimed to have constructed. This machine failed to materialize, and the flights of last week were made purely on the individual responsibility of the inventor. Engineers who had looked over the aeroplane in which Ludlow met his accident of Saturday predicted that dire results would follow its continued use. Poor mechanical construction and material were responsible for the collapse, which was sudden and complete.



LUDLOW IN FLIGHT OVER THE PIER.

THE FRENCH SMALL INVENTORS' SHOW.

PARIS, April 3.—There is an atmosphere of invention about the modest exhibition held on the borders of the working-class quarter of Paris, under the title of the Small Inventors' Exhibition. The threadbare inventor, who will give but scrappy details of his successful model for fear he should be robbed by the rich speculator; the glib young man with a worthless physical exerciser, troubled with no such fears; the hard-working mechanic with a useful little invention on display, and one or two more in his pocket which he brings out only when the visitor has won his confidence—all are to be met here. It is because of the presence of this last class that the big automobile manufacturer runs down to the show, anxious to adopt small improvements or encourage men on the right track.

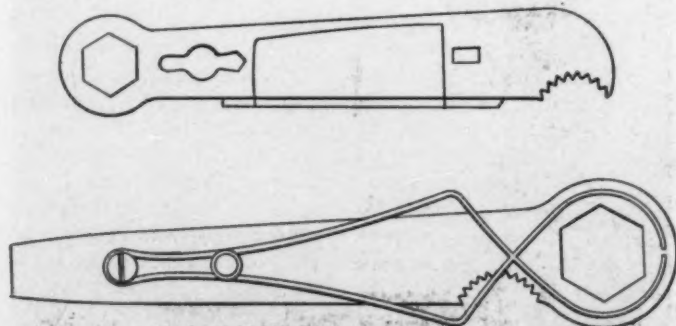


DONÉ COMBINED BELL AND SIREN.

Although the show is devoted to automobile, bicycle and kindred inventions, many of the exhibits must be put in the miscellaneous class; a majority are applicable only to cycles and the smallest number pertain to automobiles. All the inventions of any value have been patented; most of them have been put on the French market, but very few indeed have been sold abroad.

The *clé-pince* Evrard, made by M. Pupille, 2 Avenue Parmentier, Paris, is an ordinary flat key or wrench for sparking plugs with the addition of a pair of spring nippers bolted on to one of the surfaces, so as to close around the plug and hold it tightly, thus allowing it to be unscrewed and taken out without any danger of falling on the ground and without any risk of burning the hands. An improved model, which has been patented but is not yet on the market, allows a sparking plug to be dismounted and taken to pieces without the aid of any other instrument. It consists of the same flat key for unscrewing the plug, surrounded by the same flexible nippers, a screwdriver at the opposite end, and a separate key to hook onto the former, forming by means of a notched semicircle in each pair of pincers for dismounting the porcelain. When closed the improved model occupies no more space than the ordinary type, and yet contains everything necessary for taking a plug to pieces; one of the surfaces of the key is prepared for cleaning the electrodes.

On an adjoining stand is a sparking plug with revolving fan calculated to protect the terminals from oil and soot. It was in-



EVARD COMBINATION SPARK PLUG REMOVING AND DISMOUNTING TOOLS.

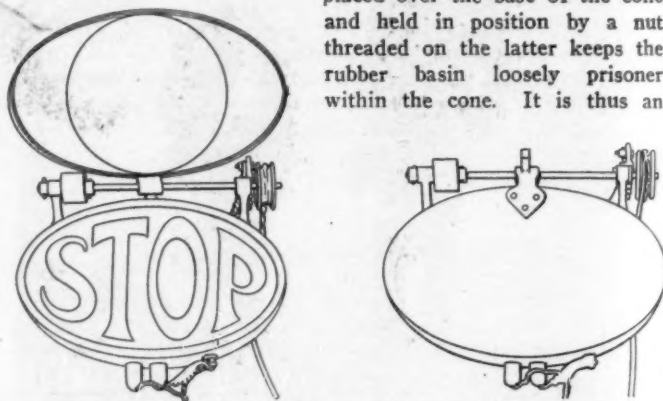
vented by C. Strumpell, 29 rue du Chateau d'Eau, Paris. Its peculiarity is that the fan is not screwed to a cross member on the interior of the plug, but revolves freely on a nicked frame riveted to the plug.

An appliance to obtain an open exhaust at pleasure is shown by Paul Fuant, of 38 rue Brunel, Paris. A brass sleeve with a

ball-shaped lid is placed over a cut-out on the exhaust tube and kept closed by means of a strong spring. By a small lever on the dashboard the pressure of the spring can be overcome and an open exhaust obtained.

To diminish street accidents, M. Chanut has invented an apparatus to warn drivers following in the rear of a car of the intention of the operator to stop. In daylight a careful driver does this by holding up his hand, but at night such a method is of no use. M. Chanut's appliance consists of a metal plate containing in bold letters the word STOP, covered by a hinged metal shield. Whenever the car is about to slacken speed or come to a standstill the warning word is made visible by raising the plate, either by a cable connected to a separate pedal or by being connected to the clutch pedal. The signal is white on a black background by day and illuminated at night by means of an electric lamp which lights up immediately the plate is raised and goes out when it is let down.

A tire pump connection which has only to be placed on the valve without any screwing or adjusting whatever, is shown on one of the stands. In place of the usual screwed-on connection there is an inverted metal cone into which is fitted a flanged India-rubber bowl with an airhole in its base. A flanged washer placed over the base of the cone and held in position by a nut threaded on the latter keeps the rubber basin loosely prisoner within the cone. It is thus an



CHANUT SIGNAL FOR REAR OF CAR, OPEN AND CLOSED.

inverted rubber-lined cone which is placed over the tire valve. The greater the pressure of air from the pump the more tightly is the connection forced down on the valve.

An improved split-pin is shown by the same inventor. Instead of opening out the two points of the pin to prevent it falling from the hole through which it passes, there are two semicircular spring arms which clip round the shaft through which the pin passes.

M. Julien, of 65 Boulevard de Grenelle, exposes a new form of magneto for motorcycles. It is placed where the trembler is usually found but is keyed directly onto the motor shaft. Thus all gearing is abolished and variation in sparking owing to vibration cannot occur. The ignition may be advanced or retarded to an almost impossible degree by this system.

A combined bell and siren is shown by Emile Doué, to be driven by a friction pulley from the flywheel of the motor. A small lever on the dashboard puts either the bell or the siren into gear at will. This appliance has been designed to permit the use of a bell emitting a sound similar to the bells employed on electric automobiles for town use, and the siren for the open country.

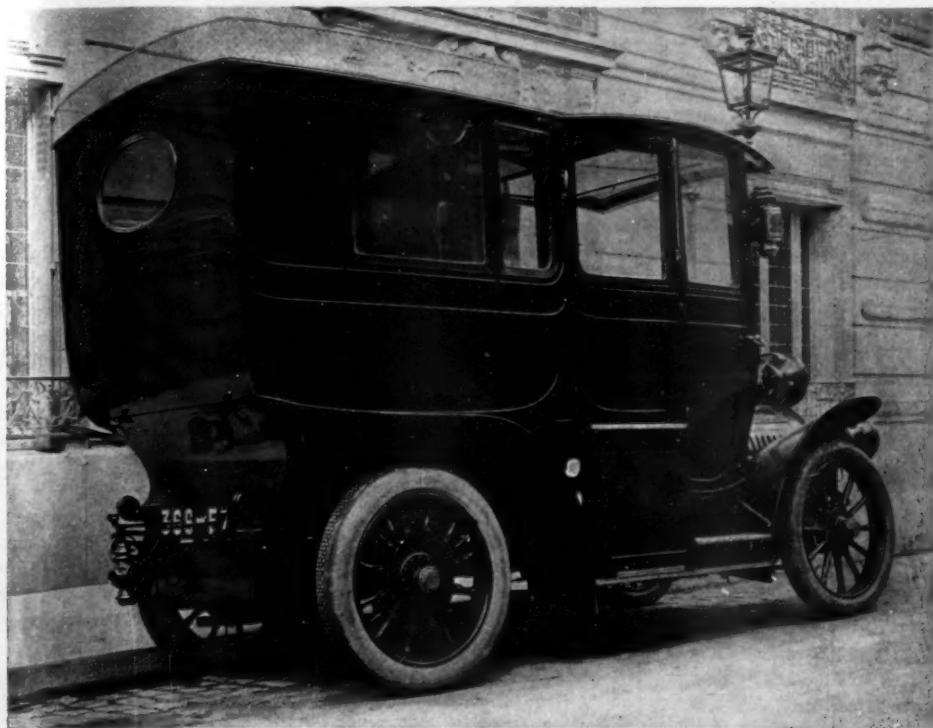
A good detachable rim, shown by M. Houdel, enables a tire to be removed and replaced in a few minutes. The outside rim is removable after three spring catches have been withdrawn and the rim turned around until its teeth correspond with the notches on the wheel. The spring catches are of the "bayonet" type and are locked in a release position by giving a half turn after withdrawing them.

A NEW AND ORIGINAL TOURING BODY.

PARIS, April 10.—Experienced automobilists are not unanimous as to the type of car best suited for extensive touring. While

into the center of the car, and to reach the transverse fixed rear seat with seating accommodation for three. A large amount of space is left free between the front and rear seats, giving ample room for packages and plenty of space for moving about. A substantial table formed of two leaves hinged at either side can be instantly folded out to go right across the car. The rear seat is not exactly at the rear of the car, the two corners being occupied from floor to roof by cupboards about ten inches deep, specially fitted for carrying table utensils and traveling necessities. Thus in center of rear portion, behind the seat, is a recess ten inches deep. This has been converted into a locker, the top of which, on a level with top of seat, forms a shelf. The seats and insides of doors are upholstered in green leather, every other part of the interior, including the ceiling, being in polished rosewood. This type of interior fitting is now very popular for closed bodies, it giving an elegant appearance and offering no lodging place for dust. There are four separate windows on each side, each one letting down into a pocket, a big oval window in the rear recess already mentioned, and the front consists of a glass screen in one piece hinged to fold up against roof. Artificial light is provided by two globular acetylene lamps in the ceiling, and extra luggage room is provided under the rear seats.

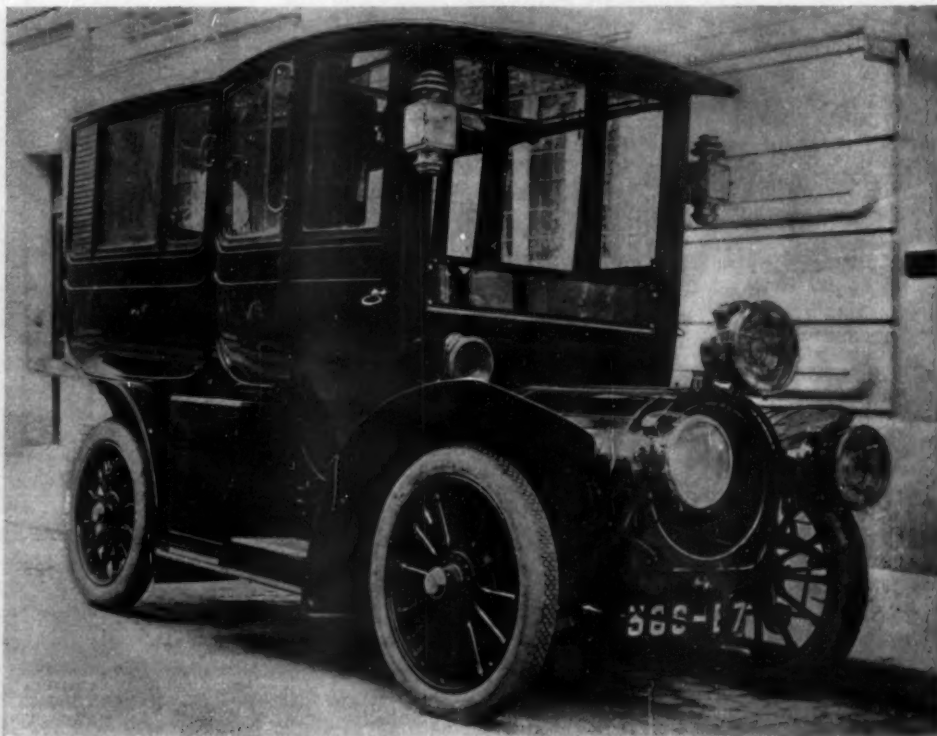
Elegance of form is obtained by making the sides of three



VIEW OF CAR FROM REAR SHOWING AMPLE PROPORTIONS OF BODY.

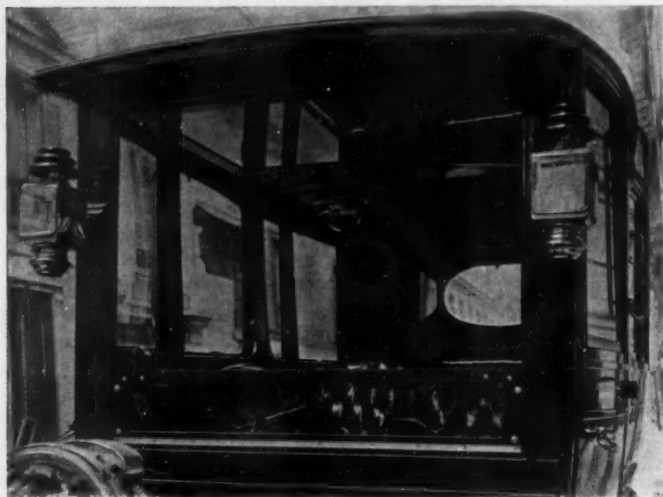
the side-entrance double phaeton body fitted with a serviceable hood and having some provision for carrying luggage is generally accepted as the model of a touring car, its scanty shelter against inclement weather causes many to search for something more satisfactory. Monsieur Gouvie, a well-known Parisian automobilist, has undertaken the search, and had constructed for his own use quite an original type of body. The automobile is an 18-24-horsepower Engène Brillié, with four-cylinder vertical motor placed under a circular bonnet; it has transmission by propeller shaft to rear axle, four speeds and reverse on same lever and is suspended on four long, semi-elliptic springs.

The maximum amount of passenger accommodation has been secured by making a clean sweep of the two open front seats occupied by the driver and mechanic, and constructing a closed body of one compartment only from dashboard to rear of chassis. Entrance is by side doors, opening from front to rear, and placed right at the fore end. One is struck on entering by the length of the interior, owing to there being only one compartment. The driver's seat, in the usual position, is a collapsible armchair in olive green leather, and beside it is a similar folding seat for a passenger. This seat is folded up in order to pass



CAR AS SEEN FROM THE FRONT, SHOWING LOCATION OF ENTRANCE.

separate panels, the largest being the rear one, which narrows in both back and front, the other two, one of which forms the door, are of equal size, the front one curving in considerably. The roof, the rear portion of which is surrounded by a metal gallery painted white, forms two distinct portions, the front half extending over the dash about six inches and having a decided curve. Wide metal fenders cover all wheels, and there is a running footboard fixed rather low, on the top of which is a tool-



FRONT VIEW OF BODY, SHOWING PORTION OF INTERIOR.

chest with rubber-covered, brass-bound top, forming a step into the car, and immediately to the rear of it a large chest about eighteen inches high, the top of which is covered with rubber, and forms a step to roof. The chest on the left-hand footboard is for the chauffeur's use, the one on the opposite side containing the acetylene apparatus. The exterior of the two cupboards forming rear of car are formed of false Venetian shutters in order to relieve the plainness which would result from an ordinary panel, and the doors of the two chests on footboard are treated in the same way.

Every imaginable fitting is to be found on the car; thus there are five lamps—one big searchlight on front of bonnet, one lamp on each side of bonnet and a pair of lanterns at front of body of car—speed indicator, clocks, grade indicator, etc. The body work is by Botiaux, of Levallois, near Paris, and the total weight of the car with five passengers on board is 4,800 pounds.

AUTOMOBILES IN CANADA.

U. S. Consul Worman, of Three Rivers, Quebec, says that while the local parliament of that province is planning to restrict the speed of automobiles by enactments that may limit them to four miles per hour, and other like unfavorable legislation, the people of the Dominion of the Great Northwest are providing every possible stimulus to automobiling. At Winnipeg, Manitoba, it is proposed to construct a 158-mile road for automobilists. It will be oval in form, and the expense of construction and maintenance will be met by the tolls collected from those who use it. It is proposed to run some big races on the road, which will be oiled to keep down the dust.

SURPRISING GERMAN INFORMATION.

U. S. Consul Harris writes from Mannheim, in response to an Ohio inquiry on the possible demand for motor boats in Germany. He says:

"It would seem that Germany should be a good market for motor boats on account of the many navigable rivers, but boating has never become a popular Teutonic amusement. Mannheim, at the junction of the Rhine and Necker, boasts of only one or two motor boats. Efficient American agents might personally popularize boating by persistent efforts, but whether the trade would justify it is the question that must be answered by the trial.

The same undeveloped taste exists in regard to automobiles. With superior highways and picturesque drives, they are not used for pleasure. Naturally a people who have not cared to drive for recreation have not cared to use the automobile, and German factories are selling their machines largely in England and other countries, finding the home market a limited one, restricted to the sporting class."

A YOUTHFUL PACIFIC COAST GENIUS.

California possesses a youth of mechanical bent, who, if he develops skill in his maturer years in proportion to that exhibited in his first efforts will make a name for himself in the engineering world. His name is Claude M. Gill, his age 18, and he resides at 1119 East Main street, Stockton. He tells the story of his transformation of an old automobile into a modern machine in his own way, as follows:

"After consummating the purchase of a second-hand Model A Cadillac, of somewhat antique pattern, the problem which confronted me, geometrically stated, was: Given—an old automobile; required—to transform it into an up-to-date car.

"When I came into possession of the car it was not equipped with a tonneau, and had no hood to speak of, consequently the first problem was to make a tonneau; the second to modernize the old hood, extending it some twelve inches. As the illustration shows, the tonneau seat is higher than the front one. This was done to allow ample foot room.

"The old hood was cut off as far back as possible and the new dashboard bolted to the angle iron frame. The new hood was made of galvanized iron, the front opening being of the same size and shape as the radiator. Two large angle irons were bolted to the forward cross member of the frame and the radiator fastened to the uprights. The spark coil was moved from the inside of the hood to the dashboard.

"The starting apparatus was entirely changed. Formerly there had been a sprocket and ratchet on the engine shaft, communicating by chain to a countershaft just forward of the flywheel, the starting crank connecting to this countershaft. In removing the sprocket from the engine shaft it was found that the same key which held the flywheel retained the ratchet block. A cylindrical steel block was then made, having a bore equal in diameter to the diameter of the engine shaft, and having a key-



CADILLAC RECONSTRUCTED BY 18-YEAR-OLD BOY.

way to fit the key already there. A 3-8-inch hole was drilled through the block, perpendicular to the bore, and a steel pin driven through. The starting crank end was made after the usual pattern. The crank itself had to be made like an elongated S in order to clear the running board.

"Both body and gear were painted as deep a blue as it was possible to obtain, and striped with gold leaf. The entire cost of reconstruction did not exceed \$100."

PROBLEM OF A. A. A. TOUR.

By A 1905 GLIDDEN TOURIST.

In view of the difficulty that the A. A. A. Touring Committee and the officers of the National Association of Automobile Manufacturers, who were called to its assistance, have found, in suggesting rules and conditions for the 1906 A. A. A. tour for the Glidden Trophy, it is pertinent to consider the contest fundamentally.

Perhaps it is unfortunate that the deed of gift of the trophy is not more specific, especially as regards the purpose of the contest or the object sought to be attained by the donor. On the contrary, however, this indefiniteness gives wide latitude to the committee in drafting the rules from year to year.

The only conditions permanently fixed by the deed of gift that pertain directly to the contest are: The total distance must be not less than 1,000 miles, and not less than 500 miles shall be traversed in a week; the tour shall be over regularly used highways in the country of the club holding the trophy (won by one of its members) except in the years 1905, 1906 and 1907, when the contest shall be held in the United States or Canada, or in both; each car must be driven by its owner or by a driver approved by the committee, the owner being a passenger.

All other rules and conditions governing the conduct of the tour are left to be formulated by the commission of seven, consisting of the president, the donor of the trophy, and the presidents of the A. C., and of the automobile clubs of Great Britain, France, Germany and a Canadian club to be recognized by the A. A. A. But the Commission turned over to the A. A. A. Touring Committee the entire conduct of the 1906 event.

There were very few hard and fast rules for the tour of 1905, and there were no observers; and as one of the direct results of the absence of such restraining influences the tour was by far the most enjoyable long-distance automobile contest ever organized in America. There were other less desirable results also, it is true, which elicited some complaints from residents of certain sections through which the tourists passed, but simple means can be adopted to prevent repetition of this. The award of the trophy, although made in a non-technical and very loose way, doubtless went to the man and car most entitled to the honor, and no serious criticism was made regarding it.

Formidable technical rules tend to discourage many owners from entering for such a competition. Touring is not a business to be taken too seriously, especially at a season of the year when everybody is in the mood and physical condition requiring relaxation, and it is an open question if the pastime will not be encouraged quite as much by promoting the pleasure and social side of the occasion as by laboriously checking the running times, the stoppages, fuel and oil consumption, mechanical and tire troubles and other performances and deficiencies of the cars.

It is submitted that the prime object of touring is to realize enjoyment—of the exhilaration of swift, easy motion and of the scenery and incidents of travel through unaccustomed country. Since discomfort is destructive of that enjoyment, the factors contributing to easy riding, protection from dust, heat and bad weather, and conveniences for carrying extra clothing, luncheons and refreshments are entitled to a proportion of credit marks.

It is also submitted that the driving has as much to do with safety and enjoyment when touring as have the details of car construction and appointment. As a matter of fact, the deed of gift indicates that the donor of the trophy had the matter of driving very much in mind when offering it, and it is a matter of record that the trophy was won last year quite as much by the careful way in which Percy Pierce drove his car as by the perfections of the vehicle itself. Driving should, therefore, be figured prominently in the points table. Ease of control and facility of handling, as on narrow, crooked, rough and hilly roads, such as are common in America, are prime factors.

Speed, above the legal maximum of twenty miles an hour, is unworthy of credit and should be penalized.

Of course mechanical reliability, freedom from ignition troubles, fuel and lubricating oil consumption, and cost and weight of car per passenger should all be given due recognition. It is also time that tire reliability be given proper attention. Tires are just as essential a part of a car as the body is, and tire troubles and delays are as vexatious as ignition troubles.

From such basic axioms the Commission can readily prepare a table of point credits, with 100 or 1,000 as the total number possible for any car to be given by a single voter. Copies of this could be given to each member of the committee and to each participant in the tour; records could be kept, as usual, of fuel, oil, and water consumption, weight, price, hill-climbing times, arrivals and departures within certain fixed hours, and number of passengers and weight of baggage carried, and at the end of the tour each participant could cast one vote for each of certain factors determined by the performance of the cars and their drivers in the run.

Members of the committee, who would have a better opportunity for making observations than the others and who would be outnumbered more than ten times, could cast, say, ten votes for each factor. Each voter could scatter his votes among as many cars as he chose, casting one (or, if a commissioner, ten) for the best driver, another for the car having the least mechanical trouble, another for the one affording its passengers the most comfort, and so on.

When all the votes had been counted the totals for each car could be multiplied by the number of points credited to each factor, and the car and driver having the largest grand total would be awarded the trophy.

Preponderance of any single make of car in the tour would not weigh seriously against justice, as the votes of the passengers in those cars would be scattered among the several cars of that make and their drivers; moreover, the larger voting power of the committee would offset their strength. A light, inexpensive car would stand only a fair chance of winning against a heavy, powerful and costly machine, and, left thus to a jury of their peers, nobody would have ground for charging bias in the award.

FRENCH AUTOMOBILE STATISTICS.

PARIS, April 10.—Statistics have just been published by the customs authorities showing a remarkable increase in the value of French automobile exports from the year 1898 to 1905. In 1898 the total value of exports was \$349,870; last year it reached the total of \$18,084,346. The following is the official table:

COUNTRY	1898	1899	1900	1901	1902	1903	1904	1905
England.....	\$113,814	\$182,104	\$505,004	\$1,622,576	\$3,837,986	\$6,335,430	\$8,992,850	\$11,220,382
Germany.....	.....	98,258	200,782	232,374	371,884	1,078,394	1,446,420	1,960,600
Belgium.....	40,342	96,932	114,706	232,320	408,764	735,726	974,242	1,270,186
Spain.....	.....	92,962	513,432	.....	.....	.....	187,550	643,222
Italy.....	20,746	.....	145,496	201,826	483,432	472,674	526,862	650,376
Other countries.....	56,648	146,098	252,392	435,978	588,374	1,056,492	1,662,530	2,325,274
Algeria.....	96,234	33,342	65,106	169,224	227,036	363,734	529,172	662,768
Colonies.....	22,086	203,970	119,654	131,862	126,406	124,988	182,308	236,538
Total.....	\$349,870	\$851,866	\$1,923,472	\$3,156,458	\$6,043,876	\$10,167,228	\$14,481,856	\$18,084,346



KAUF-HAUS (CHAMBER OF COMMERCE).

the east into Siebenburgen, or, as we call it, Transylvania, the easternmost province of Hungary, and the Land of the Grail in replica, where the mountains lie bathed in autumnal fogs, that cover and uncover the purpling heather, and where the trails that lead up to robber-nests and defiles, such as the merry knights would have delighted in, wind on and off to nowhere at all. And the kernel of this region, the heart of the Carpathians, is Kronstadt.

After months in the Balkans the very entry into Kronstadt is charming. Unlike Balkan railways, the train actually enters the city itself, or seems to. In the Balkans, to prevent ruffianly soldiers stopping off between connections, stations sometimes are as much as a mile from the city. Furthermore, the hotel is directly



HONTER'S CHURCH.

'cross the street, as it never is in the Danubian States.

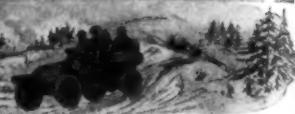
So, at least, it seemed that evening. Over the way to the hotel, and then to the long table in its restaurant, to a typical Transylvanian supper—four sausages, horseradish and unbuttered bread. Then to a room on the ground floor, where through the frost on the windows one could see the depot lights opposite; a candle to light and to heat one, and to bed beneath the double blankets of Transylvania, to sleep soundly till sunrise.

In the morning the "touring" of Carpathia began. It was cold—bitter cold—in these uplands, on October 24, and the Golden time in Siebenburgen, of which Jokai wrote, seemed long to have gone, as one watched the shivering peasants through the window, while we drew inspiration from our

In The Heart *of* The Carpathians

by

FELIX J. KOCH



IT was shortly after nine at night that we came out of

breakfast. Though bounded on the north, south and west by all Magyadom, with an ocean of Slavs to the eastward, here in Kronstadt was a bit of Germany, the primitive as even the occasional tourist into Darkest Germany seldom sees it. Heavy Teuton tables, with red tablecloths, the dish of the "Wiener sausages" and the little glass bowl of horseradish with the wooden ladle, the potato bread, smacking of the potato, as if to prove it no deception, and the beer, the cruet of pink vinegar and the picturesque hotel maid, took one back, in fancy, to Darmstadt or the Rhinegau.

Then came the deception. Kronstadt was not yet sufficiently far out of the east to have town and railway meet. The city itself was some distance off, but luckily a little narrow-gauge bound the two, and at 9:50 o'clock one might go. The narrow-gauge proved to be an ordinary street car, the size of our railway cars, divided by an aisle down the center, at either side of which the plain wooden benches were planted, while the body of the car was separated into two sections, for first and second-class respectively. The fare on the vehicle, first-class, was four cents, American copper.

Of that ride through the Transylvania country, just a word. To right and left the magnificent forested Transylvania Alps rose in majesty, bathed in all the radiance of autumnal tints. At their bases were the gardens of Carpathia, with peasants wearing "civil" and queer round caps of wool, brown as chocolate, working among the flowers. A kindly lot they are, these Transylvanian folk, with features that are decidedly Teuton, and ways that are of Germany, also. In fact, even the signboards of Carpathia are in German, though the Magyar is everywhere added, out of compliment to the ruler. Here and there clumsy wagons, with roofs of matting, go by, drawn by pairs of white oxen, and from beneath the arched cover of these float



TYPICAL TRANSYLVANIANS EN MASSE.



THE POORER SECTION OF KRONSTADT.

the voices, chattering in the language of the fatherland. High up on one of the peaks, gilded by the October sun, stands a millennial monument, rising as does Brocks' monument at Niagara, from a palisade of trees in the distance, and like the American replica, with the upper mountain slopes broken with palisades of rock also, on which the snows already lie deep. Beneath, however, the illusion is broken, for there nestles the city of Kronstadt, and Kronstadt is a mass of gay color, the houses coated externally with the concrete, tinted in delicate shades. Like the houses

plays are far from unattractive. Everywhere, however, one notes the leisure of life in Transylvania, if only by the number of groups halting on the thoroughfare to chat. Even the mothers, with their babies done up in "wickel-kind" fashion, have caught the epidemic and loiter when they should be at home.

In the center of the square, or, as they say, the "platz," stands the Rath-haus, in the olden style, much like the Römer of Frankfurt in its suggestions. About the four sides of the square are the stores, the narrow, interesting shops of Kronstadt. Everything is here for sale, from the Alpine horn to fine jewelry, and in a music store our own American ragtime. Hacks pass up and down on the cobbled square, taking people to the tall, yellow Rath-haus, or again to their homes, for cab-riding is exceedingly cheap in these lands. The bazaars that one has grown accustomed to in the East have gone from the plaza, and there are only the open bread-booths to recall them. The show windows of the pretty stores, however, open out toward the street, perhaps from the fashion of the shutters to the grand bazaars. Nor is the color of costumery one finds in sunrise lands among the poorer classes; for at Kronstadt there are shawls about the head, or a kerchief to replace the hat, and where the waists of the women are gay in their color, the cut is decidedly modern.

Sight-seeing in Kronstadt does not take long. One goes first to Honter's old church, to breathe again the spirit of the Reformation, and let memory wander back to the struggles for religious liberty. A replica of the churches of the north-land, of the days of Luther and Calvin, is this isolated edifice on the bounds of Moslem lands, with the sloping



A VISIT TO THE OLD PUMP.

of Germany of the long ago, into this concrete is set darkened beams of heavy timber, and there are deeply seasoned gables and projecting eaves in harmony, and, above all, the double windows against the winter, with the plants blooming between, as they do at Poprad in the Hohe Tatra, and again in Serbia. There are barracks here, too, and they seem almost Prussian in their style.

Then one is in Kronstadt, the unknown. One is almost tempted to say he is in Strasburg, in Alsace, so great is the parallel. Side by side the houses rise, the fore facade set in imitation of stone, the houses on different heights, so as to make this fraternal proximity the more irregular. The people on the flagstone walks chat or greet in German, and here and there, to one side, is a residence, a garden, with the gay-colored glass balls that we are fond of on our Christmas trees, mounted on poles and set among the flowers. Then, too, there is a park and a handsome public school. There is also the elegant Finanz Palais, with the Palace of Justice (every official building is a palace in southeastern Europe) close by, of stone, modern and elegant; and within a stone's throw of these innovations the little street booth, with the woman selling gingerbread men, cakes in the shape of dolls, with the eyes outlined in pink or white sugar, and the "lepp-kuchen," dear to the German heart. Further up the street there are three-story homes, the exterior covered with stucco, and carvings that are decidedly overdone, and in the German patterning, with red and white predominating among the colors. Milk wagons, the cart filled with hay, in which on either side the rows of cans repose, are driven by women about these lanes, halting while their custodian stops to peer into the narrow windows of the modern stores, whose dis-



PALACE OF JUSTICE AT KRONSTADT.



MOTHER AND CHILD IN THE MARKET PLACE.

roofs, and the heavy steeple as a contrast to the mosques and minarets, not many miles away. Inside the old sandstone edifice there are the tiers of ancient pews, made a bit more comfortable by worn green baize, and with the name plates set to one side. Two rows of thick stone pillars divide the church into three aisles, and in the center of the chamber dozens of hard and austere settles—backless chairs is, perhaps, the better word—are placed. As in the Orient, old rugs and tapestries hang from the walls for ornament, a contrast to the more modern pews beneath the balconies, which extend out to the pillars on the right and left. There is no altar, as we would expect, in this

church of Siebenburgen, but instead, a rather pretty tall organ, rich in its wood carvings and a pulpit, from which one may look down the rows of pillars, hung heavy with heraldic trophies and signs of the hymns for the next service. In the north and center of Europe there are many churches such as these, but here in the East they are so rare that to see one is decidedly refreshing.

Over the way from Honter's church is the former Kaufhaus or chamber of commerce, pregnant with legends of the days of the guilds, though it is only a one-story structure, with concrete exterior daubed with a coating of yellow. All about it face the stores, now the "Kauf-houses" *de facto* of Kronstadt. Interesting is a shopping excursion among them. Copper-cake forms that recall Christmas baking on the Neckar; German porcelains and Metlachs, old curving pipes, the mustache brushes that one finds among the military of Berlin, and plodding past, outside the quaint shops, the bouquet peddler, a woman with a tray on her head, who profits by the Teutonic love of flowers. Quaint projecting signs, often of a stork, hang out from the stores, and there are the circular yellow disks,—the plate into which the face of the newly shaven is dipped,—to indicate, as in Servia, the barber. Children trudge by, in small wool caps, peeping in at the garden restaurant, or at the office of the city-baths, a large establishment, and then run on towards their friends, the mountains, that rise ever up and all about, that they may go nutting, or enjoy the woodland pleasures of childhood.

Of sights, as the tourist seeks them, we have now about exhausted Kronstadt, and yet the golden time of Siebenburgen is at hand, and the siren of her beauty calls us to wander on. Streets of homes alone, lined with the gum-trees, from which the leaves are falling in the crisp late autumn air, lead off tempting one to explore. There is the very odor of falling leaves in the air, which makes this mountain valley of the town enchanting. A road leads up the mountain between the small houses, each plastered outer wall joined to its next neighbor, until the last ends at the bounds of the forest. Here live the poorer folk of Kronstadt, and the street has its old pump, where the little girls come with wooden water-jugs for the day's supply, looking off to the walls of two ancient ruins on the herglid, and a castle, better preserved in its roofs of red, on another. Where the Saxon gymnasium, or, as we call it, high school, stands, the way takes a turn down, and it is even more delightful to saunter between the low, one-story plaster houselets, with the green shutters, and the mountains behind, breathing a freedom that is sweet relief after the espionage one is subjected to in Turkey. In the lane there trickles down a rill of soapsuds, and old washtubs, by the curb, tell where the women empty their wash-water. Bells on passing peasant wagons tinkle merrily through the chilly air, and now and then the heavy rumble of a cart of lignite from the neighboring mines.

Then, again, one is back in the city, at the park, where the weak sun pierces between the falling leaves. There is a hospital with a park exposure, and there are squares of plain, yet neat homes, each with its windows open to the breeze, for the morning airing. Housemaids can be heard singing at their work through these open windows as they stop to fix the flowers on the sill or pass into the courtyards, which all the larger houses possess, to take out their sweepings. Here and there will be a shop, or a name plate, and one notes the names. Barabbas Jozel is the shoemaker at Kronstadt, and one A. Servatus, possibly a descendant of the reformer, plies another trade.

Then we are in another quarter. There every house strives to be painted in a different color from its neighbor; and even the schoolhouse is in yellow, with an edging of red brick, while the director's dwelling rooms, on the first floor, have the green shutters of Transylvania. Most of the houses have the plastered exterior, up to the low-hanging gables, when the uncolored frame prevails. Re-echoed by the mountains of rock is the sound of pounding carpets, unusual music for a far eastern land. A brook rambles down the main street here, and it is crossed by beams for its entire length, to prevent folk falling in. Houses open on this Venetian way and women chat in the doorways. There are

two small churches here, to which the women come from the mountains, alone in their wagons, or the girls trudge afoot, bundle on the head, a thing they dare not do in Turkey. Peasants, with wooden buckets of grapes on their backs, or bearing the tools of peasant Bavaria, flaxen-haired, blue-eyed children, Saxon in their descent, drive the geese from the gardens; schoolboys, in long trousers, long before our boys take to them, bid one another "adieu" before the three-story schoolhouse facing the park, in the shadow of the old ruin. One and all go by, out toward the border, where the ancient Cathedral Thor, the city gate of the middle ages, from which, as at Nurnberg, remains of former-town walls lead off, still stands. Children are everywhere on their way home for dinner, and past the new synagogue, into the gardens, behind the houses they swarm, stumbling against the plotted oleanders, to show mother the new souvenir postcards which they have bought for a heller, as do children the world round, or perhaps a little sausage the butcher of Brasso (as Kronstadt is known in the vernacular) has given them. Possibly a wedding procession—the bride in veil and white silk gown and bridal wreath, or some lass in her communion dress goes by to attract attention. Then again the visitor turns to the ever-interesting stores. American typewriters and Boston shoe polish are here side by side with the gaily-decorated (aluminum paint or gilt for the most part) coffins, and the pipes and the grapes that mingle indiscriminately in some of the lesser establishments. Close by is the market hall, low and clean, and with flies remarkably few, and then the theater, where busts are set outside, with Shakespeare's in the center. Little pocket electric lamps, lasting five weeks with one battery, and selling at forty cents; Alpine hats and hunting bags (for there is much hunting in this region) and photographs are other specialties of the city, and prices are everywhere marked.

Away off on the outskirts, in the other direction, where the modern homes have dropped the old-style front, and a fort guards the passing wagon trains of lusterless coal, there is a promenade, with sycamores shading a deep ravine, from whose benches, over the beer or the wine, one may look off to the mountains, the villas and chalets, as in some resort in our own Alleghanies. Then it is, indeed, that one realizes the quiet of the Carpathians, and that it is the golden time in Siebenburgen.

THE BRITISH AUTO BOAT SEASON.

LONDON, April 12.—The forthcoming season promises to be a most interesting one in England and full of events, for the British Motor Boat Club has issued a long program extending from May 5 to September 15, starting with a cruise on the Thames with Commodore Admiral Sir William Kennedy in command. This is followed by a meeting of the Outdoor Boards on June 5 and a two-days' program at Liverpool on June 8 and 9, when a flying mile for a cup presented by the club is a principal feature. The dates from July 7 to 14 are subject to alteration, as the Motor Yacht Club carries out its reliability trials, selections and race for the British International Cup in July and August, and a clashing of fixtures is to be avoided.

As matters stand, the B. M. B. C. has a race from London to Cowes down for competition on Saturday, July 7, open to all bona-fide sea-going cruisers exceeding 25 feet in length and fitted with internal combustion engines. The course is about 200 nautical miles and the prizes consist of cash, cups and medals. A special gold medal will be awarded to the fastest vessel using exclusively heavy oil and completing the course within forty hours.

The "Entente Cordiale" cup will be competed for at Cowes on August 6, the event being open to all boats built or owned in either England or France. The races are continued at Cowes on August 7 and shift to Ryde for the 14th. Newspaper cups, and extremely handsome ones too, are in the center of interest at the three days' meet at Burnham-on-Crouch, when the three cups presented by the now defunct *Motorist and Traveler* and the *Motoring Illustrated* trophy will be run off. The third day, September 15, concludes the program with the flying mile championship.

THE GOOD ROADS SPEECH OF A WISE MAN.

WASHINGTON, D. C., April 16.—Good roads was the keynote of one of the ablest speeches made in Congress this session. It was delivered in the House of Representatives last week by Representative Lee of Georgia, who, with telling force, brought out fact after fact about the deplorable condition of American roads generally. It is a significant fact that his speech was listened to with the closest attention by members of the House.

Representative Lee began by saying that all civilized governments build roads and that all save our own have some established system for building and maintaining public highways, under the direction of skilled and competent officials. Early in this century some work of this kind was done by the Federal government. The dawn of railway building and steam transportation, he said, seems to have largely drawn public attention and enter-

yet, when a bill was recently introduced in this House to appropriate \$25,000,000 annually for abating this great and continuing loss, it was ridiculed in some quarters as a fake—visionary and impracticable—as if it were wild and unreasonable to stop a leak of hundreds of millions of dollars with this comparatively small appropriation. But those who reviled it have not seized upon the opportunity to propose a better plan.

"Forty millions of dollars were promptly handed out from the public treasury to pay for the privilege of spending \$200,000,000 more to dig a ditch in foreign lands more than a thousand miles from home. Not one-hundredth of one per cent. of our people will ever see it; not one in 1,000 of our people will ever feel his burden lightened or his joy and comforts of life increased when it is finished. One-half the sum it will cost, if intelligently expended



PORT LEE HILL IN NEW JERSEY, ACROSS THE HUDSON RIVER FROM 125TH STREET NEW YORK CITY, IS ONE OF THE MOST DIFFICULT INCLINES IN THE METROPOLITAN DISTRICT—THIS IS A POPE-HARTFORD CLIMBING THE GRADE.

prise from our common highways, as a natural consequence, for more than fifty years—years that have been full of throbbing life and vigor for us as a nation; years that have no parallel in the history of our race for triumphs of man over nature; years that have been filled with a succession of wonders and triumphs in every field of human thought and endeavor. But the greatest wonder of all these wondrous years is that as a nation we have utterly ignored our country roads, and we seem surprised when we look about us and find them no better than they were half a century ago.

Continuing, Mr. Lee said: "The able Secretary of Agriculture estimates that the cost, the extra burdens imposed upon this country by bad roads, is not less than \$600,000,000 annually. These figures almost stagger credulity, but who can gainsay them? And

upon our public highways during the next ten years, would give one hundred times as many comforts and pleasures to one thousand times as many of our people. The canal will be a great public utility, no doubt, but better roads are a crying public need, now—every day.

"If the army needs a road, it gets it. Even our possessions in the Far East, the Philippine Islands, have been the objects of our solicitous care to the extent of expending \$5,000,000 in building roads for them. Porto Rico, though not much larger than some of our counties, has had over \$3,000,000 expended upon its roads since it came into our possession. During our brief occupancy of Cuba our government expended two and a half millions upon its public roads. Even those little dots in the Pacific, the Hawaiian Islands, have come in for a share and have a contemplated

expenditure of \$2,500,000 upon their roads. These various sums aggregate \$13,000,000 that have been expended during the past few years in building roads, not a foot of which lies within the United States. What have we against our own people that we should deny to them blessings that are freely extended to the idle islanders of the seas?

"But other interests and forces are coming to the aid of the solitary and unorganized farmer. His friends in the cities, having grown rich and equipped themselves liberally with self-propelled vehicles, want better roads to roll them over, and they are interested in the problem of the roads. The manufacturer, learning from experience that bad roads interfere materially with his obtaining steady and continuous supplies of raw material, wants the roads improved. The millions of operatives in the mines, factories and shops are learning that bad roads increase the cost and disturb the regular supply of food products from the farms which they must have, and they want better roads. The merchant has learned that bad roads retard and repress trade, and he wants them mended. Our Post-Office Department is greatly hindered and hampered in its efforts to supply to the country regular and reliable mail service for lack of better roads. In fact, it would be hard to name an interest, an industry, or an individual who would not be benefited by better roads."

Representative Lee said that if he had the privilege of writing upon the statute books a law that had more of the promise and potency for immediate and lasting good to all the people than any law that has been proposed or discussed in the House, it would be a law creating a Department of Public Highways, to act through and in conjunction with state, county and municipal authorities in redeeming the country from the throes and thralldom of its miserable roads; and he would give that department not less than \$50,000,000 a year until the work had reached a satisfactory stage of advancement.

"So here we are," said he, "right in the middle of the road, and the sorriest kind of a road at that. 'A condition confronts us, not a theory.' Are not a hundred years of observation long enough to convince us that the roads will not reform themselves?"

HIGHWAY IMPROVEMENT IN GENERAL.

One rural delivery route within a few miles of Kansas City, Mo., has been discontinued and others may be because of the miserable condition of the Missouri roads. Although the county spends about \$150,000 a year on macadam roads—this money being derived from dramshop licenses, and most of it collected in Kansas City—comparatively little attention is given to the dirt roads, and it is because of this that the rural service has been discontinued.

An amendment to the Missouri State Constitution, permitting counties to levy fifteen cents on the \$100 valuation for roads improvement purposes has been declared unconstitutional by the Missouri Supreme Court. It was held that the act was not good law because it did not include in its provisions Kansas City, St. Louis and St. Joseph, the three largest cities of the state. The amendment was voted in 1900. It raised the former tax five cents. Curiously enough, it was a railroad which defeated the act. The Burlington, sued by Marion county, carried the case to the Supreme Court. Many of the counties had made the levy and provided for its disbursement.

Senator Armstrong, in his proposed amendments to the New York Highway law, provides that everywhere railroad crossings at grade shall be abolished. In a year from this date, when the State Engineer, acting through the town boards and boards of supervisors, has designated on a map the main highways that are to be improved with the \$50,000,000 voted by the people, then it will show clearly how many of these main highways are crossed at grade by railroads. Then it will be possible to intelligently take up with the state railroad commission the abolishment of each one of these grade crossings at some time during the next ten years, so that the improvement of the main highways and the abolishing of the grade crossings will be intelligently and systematically done.

THE AUTOMOBILE CALENDAR.

AMERICAN.

Shows.

- April 18-21—Denver Automobile Show, Coliseum Hall, Denver Auto Show Association.
- April 21-28—Canada Automobile and Motor Exhibition, Arena, Montreal.
- May 14-19—New Orleans (La.) Automobile and Motor Show.
- May 24-26—Open Air Show, Empire City Track, New York Trade Association.

Tours.

- May 5...—Two-Gallon Fuel Efficiency Test, Automobile Club of America, New York.
- June 6...—Orphans' Day, Second Annual Celebration by the New York Motor Club.
- June 16-18—Three-Day Tour, Bay State Automobile Association, Boston to Rye Beach, N. H.
- June 18-23—Second Annual Economy Test, New York Motor Club.
- July 23...—Annual A. A. A. Tour for the Glidden Trophy, starting from Buffalo or Cleveland.
- Sept.—Endurance Run, Denver to Colorado Springs, Centennial Celebration Discovery of Pike's Peak.

Race Meets and Hill Climb.

- April 25-27—Atlantic City (N. J.) Automobile Meet.
- May 10...—Wilkes-Barre (Pa.) Centennial Jubilee Hill Climb.
- May 10-12—Macon, Georgia, Race Meet, Macon Automobile Club.
- May 20...—Boston Annual Meet of the Bay State Automobile Association, Readville Track.
- May 30...—Baltimore (Md.) Race Meet, Maryland Motor Exhibition Association.
- Sept. 22...—American Elimination Trials for Vanderbilt Cup Race (Long Island course probable).
- Sept.—Colorado Springs. Two-Day Meet. Centennial Celebration Discovery of Pike's Peak.
- Oct. 6...—Vanderbilt Cup Race, American Automobile Association.

FOREIGN.

Shows.

- April 15-May 1—Marseilles (France) International Automobile Exhibition.
- April 15-May—Milan (Italy) International Exhibition.
- April 28-May 6—Geneva (Switzerland) International Exhibition.
- Oct. 5-14—Leipzig (Germany) Exhibition, Krystall Palast.
- Nov. 1-16—Berlin (Germany) Automobile Exhibition.
- Nov. 15-24—London, Olympia Motor Show.
- Nov. 23-Dec. 1—London, Stanley Show, Agricultural Hall.

Tours.

- May 6...—Targa Florio Tour (Sicily), Auto Club of Milan.
- May 12-13—International Light Touring Car Competition, Vienna to Gratz and back. Austrian Automobile Club.
- May 13-14—Tour de France. Motorcycles and voiturettes.
- May 15-16—Le Coupé d'Or and International Automobile Congress, at Milan, Italy.
- June 5-13—Herkomer Cup Touring and Speed Trials, Munich, Bavaria.
- June 11-16—Land's End to John O'Groats. Auto Cycle Club of Great Britain.
- June 13-16—Scottish Reliability Trials.
- July 29-Aug. 15—Circuit Européen, 3,000 miles, Paris, Milan, Vienna, Berlin, Cologne, Paris.

Race Meets and Hill Climbs.

- May 27...—Motor Cycle Club of France Championships.
- June 26-27—Le Grand Prix, Sarthe Circuit, France.
- June 29...—International Cup Race for Auto Cycles, Austria.
- July 15...—Suze-Mont Cenis Hill Climb (Italy). Automobile Club of Turin.
- Aug. 1-15—Circuit des Ardennes (Belgium).
- Aug. 15-16—Ventoux (France) Automobile Meeting.
- Aug. 14-19—Ostend (Belgium) Meet.
- Aug. 23...—Semmering Hill Climb.
- Sept. 27...—Tourist Trophy Race, Isle of Man, Auto Club of Great Britain.
- Oct. 7...—Chateau Thierry (France) Hill Climb.
- Oct. 23...—Gaillon (France) Hill Climb.

EUROPEAN CIRCUIT WILL BE GREAT EVENT.

PARIS, April 10.—The exact route to be followed in the European Circuit has just been made known by the Commission des Concours, the committee having the general charge of arrangements. The total distance to be covered is 4,648 kilometers (2,905 miles), divided into fifteen stages, as follows:

First stage: Paris-Limoges, Thursday, July 26, 246 miles.
 Second stage: Limoges-Toulouse, Friday, July 27, 202 miles.
 Saturday, July 28, exhibition at Toulouse.
 Third stage: Toulouse-Nîmes, Sunday, July 29, 216 miles.
 Fourth stage: Nîmes-Grenoble, Monday, July 30, 155 miles.
 Tuesday, July 31, exhibition at Grenoble.
 Fifth stage: Grenoble-Milan (Milan), Wednesday, August 1, 244 miles.
 Thursday, August 2, exhibition at Milan.
 Sixth stage: Milan-Padua, Friday, August 3, 156 miles.
 Seventh stage: Padua-Klagenfurt, Saturday, August 4, 172 miles.
 Eighth stage: Klagenfurt-Vienna, Sunday, August 5, 191 miles.
 Monday, August 6, exhibition at Vienna.
 Ninth stage: Vienna-Prague, Tuesday August 7, 185 miles.
 Tenth stage: Prague-Breslau, Wednesday, August 8, 170 miles.
 Eleventh stage: Breslau-Berlin, Thursday, August 9, 203 miles.
 Friday, August 10, exhibition at Berlin.
 Twelfth stage: Berlin-Hanover, Saturday August 11, 186 miles.
 Thirteenth stage: Hanover-Cologne, Sunday, August 12, 226 miles.
 Monday, August 13, exhibition at Cologne.
 Fourteenth stage: Cologne-Reims (France), Tuesday, August 14, 244 miles.
 Fifteenth stage: Rheims-Paris, Wednesday, August 15, 99 miles.

In addition to the exhibitions which will be held at the six different towns en route, each one lasting for a day, fêtes and various entertainments on a large scale will be held in every town in which the competitors pass a night. The tour, indeed, will make a line of gaieties throughout Europe. At the present moment members of the committee are traveling round the circuit making all necessary arrangements for the contest. Competitors' luggage and their letters will be sent after them day by day, hotel accommodation will be provided for them in advance, direction and danger posts will be placed wherever necessary over the circuit, and every provision made for the comfort of travelers. Twenty-one cars are now entered, but this number is certain to be more than doubled before the closing of entries on April 20, and it is probable that over fifty automobiles will be in the tour.

Commenting on the event, the *Motor Review* has the following description of the route:

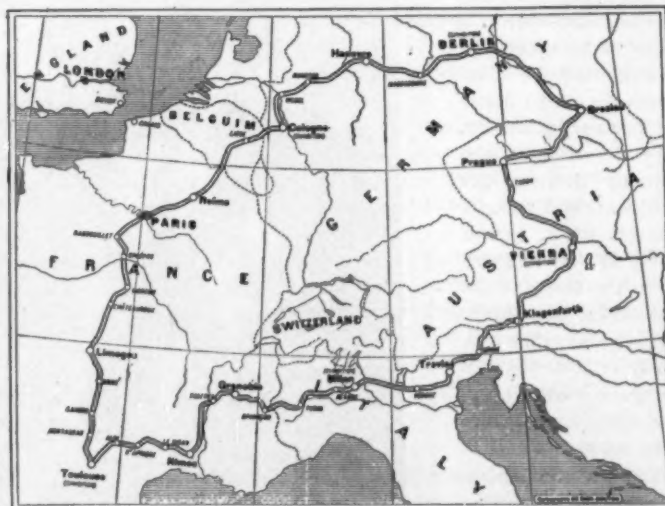
"All other events of a similar kind will 'pale their ineffectual fires' before this long and difficult run, through which few cars will come successfully unless they are thoroughly prepared for the trial. As for the small cars it is difficult to see what they can do at all in a contest of this kind. On the first day the cars will run from Paris to Limoges by way of Orléans, Vierzon and Châteauroux, a distance of 243 miles. As the roads are remarkably good over this stage the distance is nothing for the big cars capable of doing from 25 to 35 miles an hour, but the small cars would take more than one round of the clock to accomplish the journey. On the second run from Limoges to Toulouse the roads are again excellent and, after the first stage, will be easy enough, while the day's exhibition of competing cars at Toulouse will give competitors a well-earned rest. There is good going from Toulouse to Nîmes by way of the fine old city of Carcassonne, but in July the hot southern sun and the flinty roads will put very hard work on the tires when the fully laden cars are being driven at top speed. Those who do not know Nîmes will leave this interesting old city with regret, and up to Valence they will find the going a repetition of that of the previous day, but on to Grenoble the difficulties of the trial begin for the smaller powered vehicles, while even the big cars will leave the engines severely tested by constant acceleration on the long winding mountain roads of the Dauphiné. Then from Grenoble to Milan the road is long and terrible—a road of 250 miles over the Lauterets, up Mont Cenis

to an altitude of nearly 7,000 feet, and then down again to Suse; along the difficult road from Suse to Turin, and the frightfully bad road full of holes and ruts from Turin to Milan.

"The day's rest at Milan will come as a relief. Then follow the comparatively easy stages across Italy into Austria, from Milan to Padua, and from Padua to Klagenfurt. After this the competitors will find themselves fighting the natural obstacles of the road from Klagenfurt to Vienna when, for more than 200 miles, they will be traveling over roads for the most part bad and narrow, with gulleys and ridges traversing them, and, to crown all, the climbing of the Semmering to terminate the journey.

"Most of the difficulties will now have been overcome, and with a day's rest at Vienna competitors can look more hopefully to the second half of the tour, for those who have come through successfully so far may consider that the victory is more than half won. It is true that the going from Vienna to Prague is bad, but the journey is comparatively short, and the road improves from Prague to Breslau and Berlin, when there will be another day's rest.

"From Berlin to Hanover the 180 miles journey presents no particular difficulty, but the much longer run from Hanover to



MAP OF THE ROUTE OF THE EUROPEAN CIRCUIT IN AUGUST.

Cologne takes in a number of big towns through which the vehicles will have to travel slowly, and it will be a long day's run, although the exhibition at Cologne will provide competitors with a rest. From Cologne to Rheims there is another stage of 250 miles, which practically terminates the trials, for the run to Paris will be merely in the nature of a procession. What proportion of cars will come through such a test with a clean sheet? We doubt whether a single one will be able to do so, but the mere fact of finishing such an arduous tour under the conditions imposed will be enough to prove the sterling qualities of the vehicles."

The Road Club of the British Isles.

A beautifully printed prospectus, telling the aims and objects of this newly organized body, has been received from the Hon. Secretary, Eden W. Paget, Esq., whose offices are at 8 Clarges street, Piccadilly West, London. The club has been established to meet the requirements of automobilists and other motorists driving tourists, hunting and coaching people and others of both sexes, who desire to pursue the pastime of road touring under more favorable conditions than have hitherto prevailed in the British Isles. Full particulars regarding membership can be obtained by addressing the honorable secretary.

WOMEN AS DRIVERS OF AUTOMOBILES.

By MRS. A. SHERMAN HITCHCOCK.

IN these days, when the adoption of the automobile is becoming universal, it is an interesting and noteworthy fact that women, who as a rule have no mechanical training, can perfect themselves, in a comparatively short time, so that with perfect safety they can successfully manage, unaided, the large touring car; this has been proved almost conclusively during the past year, for the cars now owned and operated by women are many.

Automobiling has become the favorite pastime and pleasure of the fair sex, and they are coming more and more to understand the workings and mechanism of the motor and to learn more of its capabilities and necessities.

The time has passed when a woman driving a gasoline car is regarded as a curiosity. It is, of course, difficult to prognosticate, but it seems safe to say, that each season we will see more women who possess the ability to thoroughly master the science of mechanics, acquire the knowledge of the intricacies of the motor and familiarize themselves with its working features. Women are not, as a rule, fitted temperamentally to find the study of mechanics an easy one, but a proper understanding of any unfamiliar subject is only to be gained by systematic work in accordance with a desire to become proficient, and the woman who intends driving her own car, and make a success of it, should apply herself diligently to the study of the gasoline motor. Women have no other outdoor pursuit that can compare with automobiling. Everywhere the automobile is a diversion. It opens up new possibilities; domesticates speed and gives us increased independence.

The distance that can be traveled, the flexibility of speed, the physical exhilaration without physical exertion, is all conducive to the greatest fascination, and whether one has been an enthusiastic cyclist or a lover of the horse, nothing can equal the automobile if speed and a maximum of comfort are a desideratum.

A woman to be a successful driver should be possessed of cool nerves, a level head, courage and determination. She must have perfect confidence in herself, be ever alert and calculative, and quick of application in case an emergency should arise where instant action would be necessary. Practical experience is of far greater value than a theoretical study could ever be, and a break-down upon the road will be an effectual lesson.

Out upon a country highway, inconveniently far from expert aid, the automobilist is wholly dependent upon knowledge she may possess to avoid delays, and there is nothing more vexatious than to be subjected to long waits on account of repairs. No automobile, however well made, will run surely and indefinitely by merely handling a steering wheel and levers; it must be cared for and provided with the necessary materials and lubricants. The first things to be learned are to steer the car, the use of the

spark advance, speed clutches and throttle and the immediate action of these parts upon the motor.

Missing of explosions and even the complete stalling of a gasoline motor may occur as the result of trouble in the ignition system, and if the engine stops suddenly it can usually be attributed to an ignition fault. In most cases the trouble is something quite simple and easily overcome, and when one is in the experimental stage they should look their car over carefully and see if they cannot locate it without calling expert aid. If, however, an expert has to be called, his work should be carefully watched, and one should insist upon knowing the whys and wherefores, so that, should similar trouble arise, they could avoid the humiliation of acknowledging their ignorance of the car they are driving, and which they certainly would be expected to intelligently understand.

The spark and gasoline are two all-important factors to be thoroughly understood; they are the chief trouble brewers and cause more or less bother for the beginner. One of the essential

lessons is operation of the spark advance, so as to obtain the best results in speed and power. Be careful to feed neither too much nor too little gasoline, for the secret of a perfectly normal running motor lies largely in the flow of gasoline. Misfiring will result from sooty spark plugs, or an exhausted battery supply. To clean a spark plug an old tooth-brush and a few drops of gasoline are all that is necessary, but a better way is to always carry one or two extra plugs which may be substituted for the one that has become ineffective.



ONLY TO INQUIRE THE WAY—MISS ELSIE JANIS OF "THE VANDERBILT CUP."

A highly important thing to be strictly adhered to are road rules. If a woman has been accustomed to drive any vehicle she will be familiar with these rules, but if not, it is a duty she owes to herself and others to become thoroughly familiar with them. Many disastrous and serious accidents result from ignorance of road regulations. The car should always be under complete control, and caution be used in congested places.

There are dangers in everything we attempt, whether it be labor or play, but with the exercise of due care one is as safe in an automobile as anywhere else. Many a pleasant hour can be spent by the motor-loving woman, and one of the greatest fascinations is derived from the independence that is afforded and which can be enjoyed by no other means of travel. The pleasure and satisfaction is great in mapping out and exploring localities before unknown, or visiting points of interest that have hitherto eluded desire. The number of women driving their own cars has been greatly increased, and will be still more so as they realize the real pleasure to be derived from actually operating the car themselves—the feeling of power, exhilaration and fascination which cannot be equaled in any other way.

THE DOINGS IN AUTOMOBILE CLUBDOM.

CLEVELAND, April 16.—Asa Goddard, the recently-appointed secretary of the Cleveland Automobile Club, has started on a very energetic campaign to improve road conditions in this section of the state. His first work will be in the erection of guide posts along the main east and west highway as far west as Fremont, and as far east as Conneaut, or the state line. The Buffalo club will take up the work east of the state line, while the Toledo club will probably arrange to place guide posts west from Fremont.

The design for sign post originated by Mr. Goddard consists of a metal arrow about 30 inches long by 8 inches wide, with a light blue enamel background and white letters. This is a combination which can be seen at a considerable distance and contains the name of the indicated city or town in large block letters, with the distance and the club emblem.

Mr. Goddard expects to spend a good portion of his time in agitation of the good roads question through the press, and by means of lectures, and through the co-operation of the newly-formed Ohio Automobile Association he hopes to bring about a change in the state highway improvement laws. Under the present system the state is making an appropriation of \$150,000, which is equally divided among the various counties. The counties do the road work and charge a portion of the expense direct to the abutting property owners. Usually the property owners work out their tax by putting in their odd time at "road improvement," and the usual practice of farmers is to plow up the side of the road and throw the sod and dirt into the center, making conditions worse than before.

The practice in Mr. Goddard's home state, Massachusetts, is much superior to Ohio's. During the past eight or ten years the old Bay State has appropriated about \$500,000 annually to road improvement. The fund is in the hands of a commission and the improvements are made according to their ideas in the portions of the state which most require it. After a road has been built it is maintained by the state and is kept up in first-class condition. One-fourth of the cost of these state roads is assessed upon the county, but nothing is charged directly to the abutting property owner. There are about 800 miles of these roads in Massachusetts, and the number of miles is yearly increasing.

Oregon Automobilists Energetic for Good Roads.

PORTLAND, ORE., April 3.—With the coming of spring weather automobilists are out in force in this city and vicinity, for the atmosphere is clear and the sun shines each day with the regularity of the conditions in the month of August, which serves to promote the fever of speeding into the rural districts.

Some of the most enthusiastic autoists are working up interest in the proposal to hold a meeting of the Portland Automobile Club for the purpose of expediting the good roads movement, now being fostered with considerable activity by that organization. Their efforts will undoubtedly prove successful, for the reason that the movement is experiencing one of the greatest agitations in the history of Multnomah county, as well as all over the state. This state of affairs has been brought about by the concerted efforts of a few members of the Automobile Club, who have been ceaseless in their endeavors to secure the improvement of all thoroughfares leading to Portland and nearby places of interest.

Some of the roads in this state have been left in execrable condition after the winter's heavy travel. They have been cut up into ruts and quagmires by the passage of heavy logging teams and kindred vehicles, hauled into the timber belts for the

opening of work in the spring, and the few that had been made fairly passable last summer are now much worse than ever.

Some of the local horsemen are prone to object to the automobile, and have shown themselves willing to foster any movement that will serve to curb the industry, but fortunately they do not represent a majority of the local sportsmen. The greater number of fair-minded citizens realize that the automobile has come to stay and that the industry should be encouraged. With this idea in mind, they have joined the autoists in the promotion of the good roads movement.

Nebraskans Against Reckless Driving.

OMAHA, NEB., April 16.—New officers were elected and resolutions adopted denouncing fast and reckless driving at the annual meeting of the Omaha Automobile Club. Part of the resolution is to the effect that it shall be the duty of all members who see or know of reckless driving to make a report to the chief of police and ask that complaints be filed against the offenders. The club adopted a plan whereby each member carries an order signed by the chief of police, directing any officer arresting the bearer to accept the card as bail and release the autoist, who in turn promises to appear in police court to answer the charges. The idea is to strengthen the club and make it unnecessary for members to be taken to the police station and furnish bail in case of accidents or untoward events.

The new board of officers are: President, Dr. F. N. Conner; first vice-president, C. Brown; second vice-president, J. F. DeJarnette; secretary, E. L. McShane; treasurer, Emil Brandeis; board of directors, Harry L. Cummings, Gould Dietz and Louis C. Nash.

Secretary of State Galusha has received information that the county attorneys of Douglas and Lancaster counties, in which Omaha and Lincoln are situated, are permitting automobile owners to use their cars without complying with the state laws regarding registration. He is preparing to devise a means of enforcing the law and has requested the county attorneys to assist him. It is their duty to comply with his requests.

The Plans of the Minneapolitans.

MINNEAPOLIS, MINN., April 16.—For another season at least the Minneapolis Automobile Club will make its headquarters at the Plaza Hotel. At the fourth annual meeting of the club it was decided to rent the basement rooms of the hotel, fronting on Kenwood parkway, for one year, at \$100 per month. In these rooms, under the immediate direction of a house committee of five, the club will establish billiard rooms, an information bureau, card room, smoking room, and buffet. In addition to the accommodations which the club may provide for itself in the rooms reserved for it, the members of the club will have all the privileges of the hotel. The election of officers for the ensuing year resulted as follows: President, Frank M. Joyce; vice-president, Asa Paine; treasurer, John Riheldaffer; secretary, R. J. Smith; trustees, Dr. C. E. Dutton, E. J. Phelps, Horace Lowry, W. F. Brooks, and F. W. Commons. During the year the secretary reported that the membership had increased from 168 to 359.

A. C. of Pittsburgh Will Assist.

PITTSBURGH, April 16.—Pittsburgh has a new Director of Public Safety. It is Frank Ridgway, who for years has "made" the weather of this vicinity. Already he has his eyes on the automobilists. In the midst of the dazzling Easter crowds yesterday could be seen dozens of six-foot special policemen stationed on all the principal auto speedways armed with stop watches and

with orders to arrest every speedy chauffeur. Director Ridgway, who is backed by the Automobile Club of Pittsburgh, in his attitude will see that every offender arrested will get a severe penalty without delay.

Savannah Automobile Club After Roads.

SAVANNAH, GA., April 16.—At a recent meeting of the Savannah Automobile Club, a committee was appointed to confer with the road commissioners of Effingham county, with the object of securing better highways. The plan is to secure a good road from Savannah to Augusta, which will cross Chatham, Effingham, Jenkins, Burk, and Richmond counties. There are long stretches of the road now in excellent condition, and the improvement of the connecting links between these stretches is what is desired.

Peoria Club Joins the A. A. A.

PEORIA, ILL., April 16.—At the annual meeting of the Peoria Automobile Club held April 9, it was decided to join the Illinois State Automobile Association, which is affiliated with the American Automobile Association. The club now numbers 85 members. The annual election of officers resulted as follows: President, B. H. Onken (re-elected); secretary, R. A. Whitney; treasurer, W. H. Rees. It is the intention of the club to hold a race meet in Peoria during the coming summer, the date to be named later.

The Chicago Automobile Club's New Home.

CHICAGO, April 16.—The Chicago Automobile Club has closed a lease of the property at 13-17 Plymouth court, that city, from the National Life Insurance Company, for 99 years from January 1, 1906, at an annual rental of \$4,000 for the first year, \$8,000 for the next four years, \$9,000 for the next five years, and \$10,000 for the next 89 years. The site will be used for the new clubhouse which will be constructed at a cost of \$150,000.

CLUB DOINGS IN GENERAL.

FOND DU LAC, WIS.—An automobile club is in process of formation here and a meeting of automobilists has been called to effect a permanent organization.

NEW YORK.—Until the new club house now in course of erection on West Fifty-fourth street is completed, the Automobile Club of America will occupy rooms on the top floor of the Plaza Bank building, at Fifth avenue and Fifty-eighth street. The club's lease of its present quarters on the first floor expires on May 1.

CHICAGO.—The Austin Automobile Club, a flourishing suburban organization of Chicago, held its regular meeting Tuesday, April 17, at which time several well-known automobilists addressed the club. At present the membership numbers 87, but the officers expect to have 150 by the first of June. Ex-Alderman J. H. Francis is the president.

CORRY, PA.—The Corry Motor Club was organized on April 12 with a board of governors as follows: Wm. E. Steele, Eli Barlow, W. Ed. Marsh, Louis E. Brown, H. M. Norton, and George H. Crippen, who met and elected the following executive officers: President, Wm. E. Steele; vice-president, Eli Barlow; secretary and treasurer, W. Ed. Marsh. The club will join the Pennsylvania State Federation at once.

CINCINNATI, O.—A leading feature of the Clean Streets Convention held in this city the week of April 9-14, was the automobile parade on the opening day. Valentine Duttonhoffer, Jr., president of the Cincinnati Automobile Club, was in charge of the parade, which was in four divisions and largely attended. The cars were all gayly decorated with American flags and the city's official banner, and each automobile bore a sign indicating the commercial body it represented. The streets along the line of parade were cleaned by the new flushing machines sent to Cincinnati for the purpose of displaying their usefulness during the convention.



COL. AUGER, THE WELSH GIANT, "JUMBO," AND THE LILLIPUTIANS IN THE BABY REO, ALL OF THE BARNUM & BAILEY SHOW.

IGNITION SYSTEM FOR GASOLINE MOTORS.

By CLARENCE B. BROKAW.

TO judge from the claims of different makers it would appear that there are numerous varying systems of ignition, whereas all can be reduced to two general branches—the make-and-break spark and the jump spark. We will take up the former first, but before doing so it is of interest to look back a few years and see why this form of ignition was not developed earlier in the history of the car. Many experimenters adopted this system from the outset, and its peculiarities proved so puzzling and its shortcomings so numerous, at that time, that it is hardly to be wondered at that its popularity suffered a serious decline and that it was not resurrected for two or three years. Further along I will refer to the causes of this seemingly inexplicable abandonment and revival of the system in question.

The Make-and-Break System.

As its name indicates, in this system the circuit must first be completed or made and then broken before the spark is obtained. A very natural question arising on this point is, Why in the make-and-break system does the spark occur at the break and in the jump system upon the making of the circuit? It is a question that entails an explanation of the form of coil used with this system—a simple-wound, highly self-inductive coil. It consists of but one simple winding of heavy wire upon a core composed of a bundle of soft iron wire, the object of which is to obtain as rapid magnetization and demagnetization as possible. To achieve this end each wire is shellacked separately before all are bundled, and in consequence each acts independently of the other, thus preventing false or eddy currents being generated in the core itself. Steel could not be used for the purpose, because, once magnetized, it would remain so. Now when the circuit is made through this coil, by the hammer descending upon the anvil of the plug, there is no sign of current whatever. The potential of the current is not sufficiently high to cause it to jump to the hammer before it actually makes contact, and as an appreciable interval is required to saturate the core of the coil magnetically it does not act until the circuit has actually been made momentarily. By self-induction is meant the induced current that is set up in the coil through setting up lines of force in its core by rendering it magnetic. When the circuit is suddenly broken an almost blinding flash follows, even when only a few dry cells are used, caused by the dying magnetic field cutting the copper wire that is wound around the core. The strength of current produced depends upon the density of the magnetic field and the rapidity with which a wire cuts through the field or the moving magnetic field cuts the stationary wires. Not alone the battery current, but the far heavier induced current, attempts to follow the hammer when it leaves the anvil, and this results in the very heavy spark. Of course the latter is not as large by any means when made in the motor cylinder, owing to the much higher compression.

This is one of the chief claims of the advocates of the make-and-break system—the greater size or volume of the spark—and there is certainly considerable foundation for the contention. In fact, it is my firm belief that the adoption of a system of double ignition, that is, two plugs sparking simultaneously in different parts of the combustion chamber, would provide a means of materially increasing the power, for the reason that the time element is a factor in ignition the importance of which is seldom realized. To illustrate, if we had here a string of the granules of slow-burning powder such as is at present universally used in high-powered guns, and light it at one end with a match, it is easy to see that it will not burn as rapidly as if it were lighted simultaneously at both ends, or, again, at three different points; but holding three burning matches at one end would not facilitate the process in the least. If we can cause the explosive mixture in the combus-

tion chamber to become thoroughly ignited before the piston has had an opportunity to start outward on its power stroke there is that much gained, for the greatest strength of the blow will be delivered at the maximum pressure. But if the maximum force of the burning mixture is not generated until the piston has descended one-fourth or one-third of its stroke, which in a modern motor means little more than an inch, there is that much power lost.

This is an apt illustration of the necessity for advancing and retarding the spark; the more it is advanced up to certain limits the greater the power. A car will often climb a hill with the spark advanced as much as possible, provided the engine maintains its speed, but if the advance is too great the engine begins to pound and labor, because the force of the explosion is taking place, at least in part, before the piston has passed the dead center, and the stored energy of the flywheel and the power of the new explosion clash. If we could cause the explosion to take place more rapidly there would be no necessity of advancing the occurrence of the spark to a point just short of where it causes the engine to pound, and still obtain a better result than is at present the case. An engine that pounds on a hill or slight grade can often be made to run quietly by adjusting the carbureter so that the engine receives a richer mixture.

To come back to the make-and-break system, another strong contention of its advocates is that no amount of oil can foul its plug, because the blow of the hammer spreads it and the heat of the flash will effectually burn it away in every instance. Nor can the plugs shortcircuit, because its electrodes are such a distance apart that there is very little possibility of sufficient carbon forming between them to provide a path for the low-tension current. That is all very true, but it must not be taken too literally, because here, where the insulated electrode protrudes through the metal base, there is an extremely short distance between two current-carrying portions of the plug and the formation of a comparatively small amount of carbon about the base of this leg is sufficient to bridge the gap between them and cause a short circuit.

Another shortcoming of the plug itself is the liability of its points to wear away or break loose. This causes the gas to explode in the different cylinders when the pistons are not relatively in the same position, and makes the motor run unevenly. Platinum is, of course, the best metal to use for contacts here, but such a comparatively large piece is required and the expense is so great that nickel or steel is more often employed. There is considerable wear, though nothing compared to what this was in old-time plugs. Should you ever be caught on the road with a plug that has become defective on this account, it is not an exceedingly difficult thing to remedy. For lack of a piece of nickel or platinum, silver will serve equally well. There are occasions when it is justifiable to mutilate Uncle Sam's coin, and nothing is better than a dime. Pound it out a little thinner and cut a piece of the size required. Brighten the surface of the plug hammer with a file and solder the silver to it. For this purpose cyanide of potassium should be used as a flux. It is a deadly poison and must be handled carefully, but it is possible to obtain it at almost any drug-gist's. A blow torch is the only other requirement, and there are few country tinkers who cannot supply this. Where borax is used as a flux it tends to form in small balls between the silver and the iron and prevents making a good joint.

Moreover, the shortcircuiting of a single plug of this system renders the engine useless for the time being, whereas with the jump spark it is possible to run the engine on three, two, or any one cylinder while testing the others for the breakdown. It is thus a more difficult matter to locate a fault in the make-and-break system where this is brought about by the short circuiting of a plug, as it is not so easy to put your hand on the particular plug that is causing the trouble. Then, again, I have found that

*From a lecture delivered before the Automobile Club of America in New York, March 27, 1906.

accurate timing of the occurrence of the spark in each cylinder forms more of an element upon which success is dependent in this system than in the jump spark.

For instance, cylinder number three follows number one in the order of firing, but through a faulty adjustment of the push rod of plug number one, or for any other reason, the circuit is not broken here until it is made by the coming together of the hammer and anvil of plug number three, it is evident that no spark can occur in number one and that cylinder will miss. In other words, one plug is literally robbing the other of its spark and it constitutes a fault that is more or less difficult to locate.

As to the purely mechanical side of the make-and-break system—that is, the necessity for a camshaft, cams, push rods and springs—I need hardly say anything. They are considered an insuperable obstacle to the adoption of this system by some and by others are regarded as entailing no more complication than the timer and coils of the high-tension system.

This brings me to the subject of the coil used with the make-and-break system, which I have already described in detail. But one coil is necessary in series with the source of current for any number of cylinders up to four. It is found, however, that at very high speeds the action of one of these coils is not sufficiently rapid to permit of its demagnetization before the occurrence of the next impulse, so that in some instances two coils are used, and I believe that this will be necessary on the new six-cylinder engines of the Mercedes racing cars, otherwise the jump spark system would have to be used. The only thing left to be considered in connection with this system is the source of current supply, and the inability to obtain anything satisfactory for this most essential part of the service was what led to the abandonment by the majority of builders of the make-and-break system early in the history of the automobile movement.

Batteries.

First there is the battery, and by this I mean specifically the primary cell of which the dry type was almost universally used in the beginning. As it is necessarily composed of a number of units, owing to the fact that it gives but 1.5 volts per cell, it provides a number of sources of trouble in the numerous connections likely to come loose. But far more troublesome is its tendency to polarize. This is a peculiarity of the dry cell that has caused many of us to discard a good battery and replace it with a brand new one simply because we did not recognize the symptoms. Before we had gone thirty or forty miles with a dry battery, and a make-and-break system of ignition, the battery had ceased to act, and the only reasonable conclusion appeared to be that it was dead. But it was merely polarized, and, if given an opportunity, would recuperate and be practically as good as new.

In the working of any chemical primary cell hydrogen gas is generated and the bubbles attach themselves to the positive or carbon element of the cell. It will continue to produce a current in spite of a certain amount of this gas, but once the surface of the carbon plate is entirely covered with hydrogen bubbles the cell is polarized and ceases to act. This is the result of keeping it on closed circuit too continuously, and the only thing needed is a rest to bring the cells back to their normal productive condition. For this reason the dry cell is very expensive and entirely unsatisfactory with the make-and-break system. It polarizes too quickly.

Then there is the accumulator or storage battery. While this is a vast improvement over the dry cell in its greatly increased amperage, it is likewise an expensive source of current to employ in connection with this system; the demands for current are entirely too great and the storage battery would need recharging far more often than would be convenient or practical.

Both the dry cell and the accumulator will give satisfactory service, and are doing so in thousands of cases, but I consider the storage battery very much superior, for a number of reasons, chief among which are its much greater amperage, small number of connections to give trouble and ease of maintenance. No matter which form is used, an extra battery should invariably be

carried as a reserve, and, in the case of dry cells, they should be used alternately, switching over to the fresh set the moment the ones in use show signs of weakness. This should never be done with the accumulator; always use one set until it is exhausted; and this can be ascertained by testing each cell with the voltmeter. If the voltage has dropped to 1.7 per cell, further use of that battery will be apt to ruin it. It should be recharged as soon as possible, as standing in this condition will also cause it to deteriorate rapidly. When the dry cells are suspected of giving out they should be tested with an ammeter. It is useless to test them with a voltmeter, as they will usually give a reading of 1.5 volts, whether fresh or old, and their potential is seldom an indication of their condition. Failing an ammeter, they may be roughly tested by momentarily short circuiting with a piece of wire and judging their state by the size of the resulting spark. Should neither set be fully active, both sets may be coupled in series-multiple, thus giving the amperage of both sets at the same voltage as previously. When new a dry cell should show 22 to 25 amperes on test and the buyer should always insist upon this in order to prevent having palmed off on him some that have been standing on the shelf indefinitely.

Never, under any circumstances, attempt to test a storage battery in this manner, as you will, in all probability, ruin it by causing it to give up its entire capacity of current at one instantaneous discharge, which is so hot that it will burn up any small piece of metal. Test the condition of storage batteries with a voltmeter. About 2.25 volts per cell indicates that they are fully charged.

As to the connections, always use flexible cable for wiring the ignition system of any car. Copper changes character very rapidly under the influence of vibration, and a solid wire will readily become brittle when subjected to constant shaking. In fact, it will become so very brittle that it will snap off at the slightest provocation, leaving the insulation, to all appearances, just the same. There will be practically no indication of the location of the break in the wire, which can only be discovered by putting it to a bending test. Bend over every inch or so until the rupture is reached and the latter will then be apparent. For this reason do not use solid wire, as it is bound to cause trouble sooner or later. A cable is composed of a number of very fine wires and is as flexible as a piece of string. It is not harmed by the vibration and is not so apt to break, but care should be taken to gather all the separate strands together and solder them or fasten them in a terminal, as one of these hair-like wires straying about may prove a prolific source of trouble not overeasy to locate.

The Magneto.

As we have already seen, neither of the forms of battery in general use is capable of supplying sufficient current to make it a practical source of supply for the make-and-break system. This is what caused the almost universal abandonment of the latter and its subsequent readoption when the magneto was taken up. The low-tension magneto in construction is simplicity itself. A bank of compound permanent magnets composes the field. They are made of a peculiar quality of high-grade steel. Tungsten steel is generally employed on the Continent, as it is noted for its capacity to retain an unusual degree of magnetism. They are very highly magnetized and semicircular cast-iron pole pieces are affixed to their poles so as to encircle the armature. The armature core is an H-shaped piece of cast iron, upon which there is a single, simple winding of comparatively coarse wire, one end of which is led out through the hollow shaft of the machine to a metal terminal on its end, against which a collector brush presses. The other terminal of the coil is grounded, and this leads me to make another digression on the subject of grounded connections, for I firmly believe that if the grounded connection in ignition system wiring were either discarded entirely or had more attention devoted to it there would be far less trouble.

For instance, a battery is located under the driver's seat of the car. The most convenient place to make the ground connection is on the frame in close proximity. From here the current has to find its way to whatever may happen to comprise the ground connection of the distributor, and its course may have

to pass through rivets and joints in the metal, and occasionally through bearings; and the better the bearing, the poorer conductor will it make, for there will be a film of oil between it and its shaft and there will be little actual metallic contact. The same is true of the secondary circuit, although in this case the greater voltage of the current will enable it to bridge gaps and pass through or over obstacles that would break the primary circuit. It should always be the object in wiring up a car to see that these ground wires are led as closely as possible to the point from which they are to return the current, and the metal drilled and tapped to insure a good, firm connection.

To get back to the magneto: when the armature is in this position or straight across the poles the magnetic circuit is complete, the lines of force flow through it uninterruptedly and there is no voltage. Whenever you withdraw the armature always place a piece of iron or steel across the poles to prevent the loss of magnetism. Giving the armature a quarter turn to the right, in case the machine is connected to run in that direction, brings it to a point where it is cutting the maximum number of lines of force and the wave of alternating current reaches its peak or greatest value. That is, when a line drawn through the center of the armature would strike the corners of the diagonally opposite pole pieces. This is the point of greatest current flow, but it will be evident, for an eighth of a turn before, that it is approaching this maximum point and, for an eighth of a turn after, that it is receding from the maximum, so that within these limits it is possible to time the occurrence of the spark by advancing or retarding the movement of the armature to the extent indicated, and this is what is done. But on some of the cars using the make-and-break system with the magneto the spark is not advanced or retarded when under way. Provision is made for retarding temporarily in order to start the engine, but once running it takes care of itself, as the speed of the magneto naturally increases with that of the motor. It is not absolutely necessary that the magneto should be timed with the engine, as it can be geared to spin at a high rate of speed and thus deliver a constant alternating current, but this is not done usually.

A puzzling question for many students, and doubtless for many automobilists as well, is the difference between the low-tension magneto such as is used on the Locomobile, the Cleveland, Brazier and other cars and the high-tension magneto such as the Eisemann, Remy, the Lacoste and the Simms-Bosch. Electrically considered, there is no difference between the low-tension magneto and the Remy or Eisemann, for both of the latter are, strictly speaking, low-tension magnetos, although the systems in which they are employed are termed high tension.

On the Remy machine the magnets are equipped with the usual pole pieces made fast to the poles, but, in addition, the armature is surrounded by what is virtually another set of pole pieces and the latter may be shifted. The adoption of this set of shifting pole pieces obviates the disadvantage previously referred to—the fact that in the ordinary type of magneto advancing or retarding the spark meant causing it to occur before or after the occurrence of the point of maximum current flow in the armature with a consequent loss of efficiency. With the Remy movable pole pieces the spark may be broken at any time within a wide range of advance or retardation without losing the benefit of the maximum point.

To return to the matter of the difference between the two systems, this consists principally of the fact that the current generated by the magneto of the low-tension system is used directly as it issues from the machine, often without the intervention of a coil. In the Eisemann and Remy systems the current is passed through a powerful non-vibrating induction coil and then through a high-tension distributor made to run synchronously by gearing it with one to two pinions to the armature shaft itself.

"Apt to give trouble," you will immediately conclude, with regard to the high-tension distributor. If it were of the fiber and metal variety, with its rubbing contact, there would be trouble, and in a very short time. The constant rubbing together of the two surfaces produces an amount of fine metallic dust that is

sufficient to provide a path for the secondary current of 30,000 to 40,000 volts. With the aid of a little moisture (and sometimes without it) it would be converted into a mass of fireworks, for the secondary current would find its way all over it. In the Remy distributor there is no rubbing contact whatever. The collector revolves in front of the four contacts representing the plugs of the different cylinders, but does not touch them; there is an appreciable gap between them and the spark must leap it. This distributor finger, as I call it, is a fair-sized wedge or triangle, held at its apex, while its curved base revolves before the contacts. The reason for this is the necessity of making provision for advancing and retarding the spark. If the latter were occurring just as the near side of the triangle came under the contact point it is evident that it might be retarded but not advanced, so that when the magneto is timed to be in step with the engine the spark is made to occur just as the center of this wedge passes beneath the contact, and by this means fully thirty degrees of advance or retardation are provided for.

A question that often arises in this connection is, How does the spark occur in both the primary winding and at the secondary terminals simultaneously? As already indicated, the magneto is timed with the engine so that the current is taken from the armature just when the latter is at the position of maximum voltage and at the same moment the wedge-shaped collector is passing under the contact representing the terminal of the cylinder that is to receive the spark. The magneto is geared to run at the same speed as a four-cylinder engine and the distributor is geared down to half that speed, so that every time the collector sweeps by one of the contacts a spark bridges the gap. This is termed synchronous distribution, in that the functions of the magneto keep step exactly with the impulses of the engine.

The Lacoste and the Simms-Bosch are two magnetos in current use that are, technically speaking, of the high-tension type. The difference lies in the winding of the armature. The low-tension magneto armature has but a single simple winding, while in the Lacoste, for example, the armature contains both the primary (generating) winding, as in the case of the low-tension magneto, and also the secondary (transforming) winding. In short, the current is both generated and stepped up to the voltage necessary to spark at the plug right in the armature. A condenser completes this portion of the mechanism, and usually forms the protective cover for the armature, being encased in aluminum. The only remaining step that the current has to pass through before reaching the plug is distribution, and this is accomplished in practically the same manner as I have just outlined in connection with the Remy machine.

Condensers.

Undoubtedly the condenser is one of the least understood parts of any ignition system; and even the highest authorities vary as to just what its functions consist of.

The condenser stores electrical energy in the form of a static charge, and the simplest form of condenser would consist of two metal plates separated by insulation, which is known as the dielectric, regardless of whether it takes the form of air, glass, mica, wood or any similar substance. Paraffined paper in combination with sheets of tinfoil is most commonly used, as it is desirable to have as large an amount of area as possible consistent with small bulk. The sheets of tinfoil with alternate tabs are placed on each side of a sheet of paraffined paper, plain sheets of paraffined paper are placed between each two metal-covered sheets and the whole put together under pressure. One end of the circuit is led to one of the alternate groups of tinfoil ends and the other one to its reverse, so that there is actually no mechanical connection between the two sets of plates. When a sheet of the dielectric punctures, through an overcharge, then the condenser is ruined, as it will short circuit the primary.

Dielectrics possess a property termed specific inductive capacity, which may be compared with the elasticity of a membrane exerting pressure upon a column of liquid. The greater this elasticity the greater the amount of liquid which will flow for a given pressure. In measuring specific inductive capacity, air is taken

as a standard, and this capacity is defined as the ratio of the capacity of a condenser with a given dielectric to the capacity of the same condenser with air as a dielectric. If, for instance, it takes eight times as much current to produce a potential difference of one volt between two plates separated by mica, as it does when only air intervenes, the specific inductive capacity of the mica would be 8. The dielectric coefficient for paraffine which is used in spark coil condensers is about 2.02. The capacities of two condensers of the same dimensions, one using air and the other paraffine as the dielectric, would be the same provided the thickness of the paraffine be one-half that of the air separating the plates. If water flowing at high velocity through a pipe be suddenly shut off the inertia of the moving mass of liquid may be sufficient to burst the pipe. An electric current possesses something similar to inertia. Whenever the current changes in any way this inertia produces an electromotive force or pressure, termed self-induction, and the greater the number of electro magnets in the circuit the greater this force will be.

When the current is switched off the stopping produces a pressure tending to keep it going in the same direction; the more sudden the stoppage the greater the pressure, just as with a flowing liquid. When a circuit of considerable self-inductive capacity such as the primary of an induction coil is suddenly broken there is immediately set up a heavy electrical pressure tending to break down the insulation. As the circuit in the primary is broken at a high rate of speed by the trembler there is considerable self-induced current set up, and it would, unless diverted, rapidly burn up the contact points by forming an arc there, at the same time preventing the armature or trembler from making and breaking the circuit at anything like the requisite speed. The condenser is used to obviate this, and is connected in shunt with the trembler; when the circuit is opened the current rushes into the condenser instead of bridging the air gap at the points. When fully charged the condenser discharges itself back into the circuit, instantly demagnetizing the core, and produces an intense spark in the secondary circuit, thus aiding in the working of the coil in this manner besides. In fact, Sir Oliver Lodge, the English scientist, has devised a system in which a form of condenser, namely, Leyden jars, are used to cause the spark at the plug, and I believe this is the fundamental feature of the Holley magneto, which accordingly differs from all others on the market.

Coils.

Speaking of condensers brings me to the coil. The most important thing for the motorist to learn in connection with this essential of the system is how to properly adjust the trembler contact and how to guard against breaking down the secondary winding by imposing too great a strain upon it. To take up the first of these it is really marvelous to note the difference in the power on such small cars as the Olds and Cadillac single-cylinder machines that may be obtained by giving the trembler screw a quarter or half a turn. It is a matter of "tuning" the buzz of the trembler blade to a certain pitch, and an experienced ear is readily able to detect the fact that a coil is running too slowly. The object is to obtain as long a chain of sparks in the combustion chamber as possible, and to do this the trembler must vibrate at a very high rate of speed. Its note should be a high, evenly-maintained tone and it requires but a fraction of a turn of the screw to make its speed much too low, when the spark will not be repeated a sufficient number of times in the cylinder, or too high, in which case the action of the trembler becomes irregular. Learn to know your coils and by familiarizing yourself with the tone produced when they are working at their best, you will have little trouble on this score.

I will digress here for a moment, and add, learn to know just what each position of the spark advance lever on the sector at the steering wheel means in relation to the travel of the pistons in the cylinders and you will then be in a better position to take care of the ignition system.

With regard to guarding against a breakdown of the secondary winding of the induction coil, this is something much easier to

bring about than is generally imagined, and it entails a costly repair, as the secondary must be rewound. If for any reason a coil ceases to operate, do not attempt to test it without providing an outlet for the secondary current. Every time the trembler buzzes a current of enormously high tension (30,000 to 40,000 volts) is induced in the secondary, and unless an escape is provided for it, damage will result. If the gap between its terminals presents an excessive resistance that cannot be bridged by the sparking capacity of the coil, it must find its way out somewhere, and under these circumstances the path of least resistance will be through the insulation to the primary or through its own insulation—bad in either case.

According to the makers there are many forms of coils: three terminal, four terminal, and five terminal coils, also non-vibrator and vibrator coils. The two last really express the only fundamental difference, as the other terms merely refer to the number of connections provided to suit varying needs. If you ever find it necessary to test a coil in order to ascertain which are its primary and which its secondary terminals, bear the foregoing instructions in mind. If the secondary terminals be entirely unknown, as in the case of a five terminal non-vibrator coil, where binding posts seem to crop out all over it, do not repeat the test once you have found the primary terminals. In case it is of the vibrator type, which are usually easier to locate, always take the precaution to screw the trembler down tightly. There is then little danger in making the test. There is one more point with regard to coils, and that is whether it is preferable to use one or four with the four-cylinder engine, and from my experience I should say have four coils by all means. Less work is imposed on each one and it is accordingly less apt to give trouble and there is always that much more chance of getting home.

Plugs.

The spark plug is one of the few things connected with the automobile that has undergone scarcely any change for some time past. All those on the market at the present time are of practically the same design, the one point of distinction noticeable being the use of mica for insulation in some (the minority by the way) and of porcelain in others. Without prejudice, I must say that the mica will sooner or later absorb oil or moisture and permit the current to pierce it, no matter how tightly the insulation is pressed together. On the other hand, it is proof against breakage, which is certainly an advantage. That, however, is the only disadvantage of the porcelain plug.

There is one unusual plug in general use—that employed on the Cadillac cars. This is a plug with a direct return; that is, it has no ground return, but employs a double wire circuit. By this construction it is almost impossible for the plug to become short-circuited by carbon, because of the great insulated space between the spark points and the metal part of the plug, also because the secondary current has no reason to jump to ground to complete its circuit. There is one thing about it that is well to keep in mind, and that is, should one of these electrodes become short-circuited with the metal base, if it can be removed and the hole plugged the other point may be bent down close to the metal and it will spark just as well as ever, provided the other secondary terminal at the coil be grounded.

The Dynamo.

In conclusion I will merely say a word or two with regard to the dynamo, which has not been touched upon previously. In my experience I have found it is prone to break down, particularly by short-circuiting at the brushes and by a failure of the governor to check the speed when the latter becomes excessive. Where this year's model of the Apple ignition, set with a direct current generator and accumulators, with an automatic cut out in the circuit, is concerned, I have had no experience on a car, but from what I have seen of it in the course of demonstrating it before a class, I should say it will work very well. On the whole, I think the high-tension magneto of the Eiseman type, that is, a low-tension magneto with an induction coil separate, will, in the course of time, come to be almost universally used for pleasure car use.

HELPFUL TO THE MAN WHO DRIVES HIS CAR.

THE old adage, "that a stitch in time saves nine," is as applicable to the gears of an automobile as to anything else. To those car owners who are always kicking over the repair bill, a word to the wise should be sufficient. Few owners think it worth while to have their cars looked over by competent men until something happens which compels them to move it to the repair shop, and then they find to their cost that neglect in this direction has worked considerable damage to many of the parts. Any unusual sound on the part of the machinery should be looked after at once and not allowed to run, especially if the sound emanates from the gear case. Nothing is so destructive to the mechanism as a bad wearing gear, and should the trouble be allowed to proceed until the shaft lifts, the wheels will not mesh properly and the teeth will be ground away. It is better to take the ounce of precaution than to be forced to swallow the many dollars' worth of cure. Not only is the above advice applicable to the matter of the gearcase, but it can be applied with good advantage to all parts of the running mechanism. Roller bearings that support the wheels of the car frequently suffer from neglect of the owner or user of the car, and the writer has seen them ground into a shapeless mass through neglect and inattention to lubrication and adjustment.

Necessity for Proper Brake Inspection.

Automobilists who employ drivers should make insistent inquiries every week as to the condition of the brakes and should demand that they be kept in perfect condition, and owners who do not employ drivers should rigidly look after the matter themselves. By jacking up the back wheels of a car the brakes can be easily tested. The side brake lever can be put half way on the notched quadrant to find if the brake is holding the back wheels and holding them evenly. By advancing the lever notch by notch one can discover at what point the wheels are locked, and at this point the lever should still be able to move forward on the quadrant. The foot brake can be tested out in the same manner. Have the driver sit in his seat and press the foot pedal while you test the wheels. When the wheels are locked the pedal must not have been pressed down to the floor board, but must still have space underneath to allow of more forceful application.

Keep Pumps Clear of Sediment.

In the water jackets of cylinders there often remains a quantity of sand that is used in the foundry in making the castings. This sand is sometimes loosened by the circulation of the water and finds its way into the pump, when it is fitted low and close to the motor. With centrifugal pumps the effect of this sand is to wear away the pump vanes. It is, therefore, advisable to disconnect the pump in a new car at various intervals and clear it of sediment. Many rotary pumps set up end thrust, which forces the vanes up against one side of the pump, and the vanes wear down in the course of time, until the pump leaks and refuses to circulate the water. As the pump appears to rotate properly, the trouble is sometimes difficult to locate. A simple temporary remedy is to solder a strip such as a short length of wire, along each of the worn vanes, but a permanent cure can only be effected by putting in a new thrust bearing.

Preserving Tires from Rim Rust.

M. S. Fairbanks, of Fresno, Cal., writes that the very best thing that he has found to preserve tires from rim rust and consequent rotting of fabric is a German aluminum enamel paint. His mode of procedure in applying same to accomplish the best results is as follows: After thoroughly cleaning the inside of the rim with emery cloth and brushing off, the paint is applied with a brush, carefully spreading the material into the recess of the rim. Then, while this is drying, paint the bead and inner

flat space of the tire that lays on the rim. After all is dry, lay on the tape and apply tire in the usual way. It will be noticed that when occasion requires the tire to be removed, it can be done much easier, it being impervious to rust, and consequently less liable to rim cut.

Treatment of Tires After Vulcanization.

Tires that have been vulcanized during repairs ought not to be used too quickly after treatment. They should be kept in a cool, dark place for a while, away from natural deteriorating influences, so as to allow the sulphur in the rubber to freely intermingle, and so assist in reducing the rubber to its normal elastic state. Those who have vulcanized their tires have probably noticed that it takes three or four days before the new black surface assumes the grayish appearance—this exterior deposit being nothing more or less than the working out of the sulphur as a result of the heat applied during the vulcanizing process. If the tire is allowed to stand as above advised it becomes more impervious to wear, and the life of the rubber will be lengthened considerably. As the future supply of rubber is a matter of serious consideration on the part of commercial economists, the conservation of that with which we come into daily contact becomes a matter of importance.

Ran His Machine with Kerosene.

An interesting experience by a motor cyclist is told in *English Motoring*. The motorcyclist ran out of gasoline, and as there was none of that precious product to be obtained where he was at the time, he thought he would try kerosene, a quart of which he procured at a wayside cottage. There were a few drops of gasoline left in the tank, which he coaxed into the carbureter, and then poured the kerosene into the tank. The motor fired at once and he did the next ten miles without a stop. The smell was appalling and the exhaust pipe was red hot all the way, but no damage was done. The power developed appeared to be about normal.

Cranking with the Left Hand.

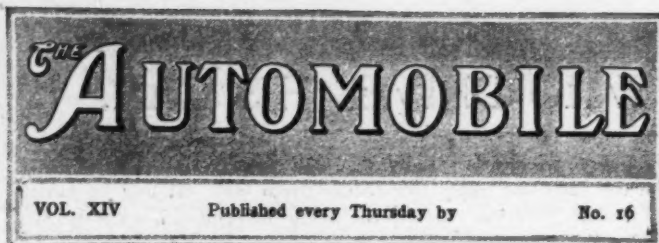
An automobilist writing to *English Motor*, makes an urgent plea to all interested to learn to turn the starting crank of the motor with the left hand. He claims that in case of a back fire the consequences are not nearly so serious to the operator's arm and wrist, and that it is much easier to get out of the way of the handle of the crank when the left hand is used. He also says that the knack of starting the motor with the left hand is easily acquired, and when once acquired the advantage gained is so great that a return to the right-hand method is not to be thought of.

The Lubrication of Steering-Gear Joints.

Lubrication of steering gears is essential to their smooth operation and longevity. Probably no other part of a car's outfit is as easy to overlook when "oiling up" as the knuckle-joints of the steering gear, yet when the continuous amount of work they perform is taken into consideration, and the strain they are subjected to is brought to mind, the necessity for proper lubrication becomes apparent. A leather cap over these joints filled with grease is the best method, as it keeps out grit, thereby reducing the wear and keeping the front wheels steady.

When the Crankcase Gets Too Hot.

When the crankcase of a motor that has been running for some time becomes uncomfortably hot, the natural inference is that there must be a leakage of burning gases past the piston. Crankcases become heated to a certain extent by conduction from the hot cylinder walls, but they should never become so hot as to be unbearable to the touch. A very hot crank chamber means that the piston rings should be looked after at once.



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**Cause and Effect in
Automobile Legislation.**

Viewed from the standpoint of the automobilist, the most liberal legislation ever accorded the automobile July 1 will be wiped off the statutes of New Jersey, and for it will be substituted the Frelinghuysen measure, shorn materially of some of its bad features through the energetic work of the Associated Automobile Clubs of New Jersey, but still containing many things detrimental to the enjoyment of automobiling in that commonwealth.

For this loss of a good law and its replacement by an irksome measure, the automobilists have only themselves to blame. True it is that a very small percentage of inconsiderate drivers are responsible for the wave of sentiment that brought about the passage of the Frelinghuysen bill, but the result is one wherein the law-abiding automobilist can find cause for serious reflection in reference to the future. It all means that the army of auto users must to some degree take upon themselves jurisdiction over these scorchers of the road and bring them to their senses in an unmistakable manner. While one might question the fairness of the means by which this Frelinghuysen bill was enacted a law, the fact still remains that it is a law and one that is going to give automobilists a deal of inconvenience. It is a heavy cost to pay for the antics of a mere handful of drivers, but all the regrets in the world will not change the situation at this particular time.

By assisting in keeping the highways free of this pernicious class of scorchers, the good automobilist may be able to lessen to an extent the enforcement of the law to its every

letter. The legislators did not dare to disregard the views of their constituents, and Governor Stokes probably shared the same apprehension. That the law will be enforced to its strictest possibility by the petty officers who will be enlisted in the work is a certainty that admits of no doubt, and it will be up to the automobilist to make the best of an unfortunate situation.



**The Pneumatic Tire:
Its Use and Abuse.**

It is a common thing to hear automobilists say that the pneumatic tire is one of the weakest points in the equipment of the automobile; in fact, it seems to be agreed that this is the case. While some parts of the machine have been so improved as to give almost no trouble, and other parts are rapidly approaching this stage, the development of the pneumatic tire does not seem to have kept pace with the general all around improvement. It is still puncturable and cut and worn by road roughness and stones. Even in the most expert hands, races are won or lost on the behavior of tires.

In the general anxiety to get a tire without weakness, many persons lose sight of the functions of the "ideal" tire. The ideal tire would consist wholly of air, the best cushioning medium we know of, and would pass over all small inequalities without jolting the car in the least. As the ideal tire is impossible, however, we must confine the air cushion in an envelope of the most resilient material available, which is rubber. And in the very fact that the rubber is resilient and soft—in its very weakness—lies the perfection of the pneumatic tire. The softer and thinner and more resilient—the weaker—the envelope can be made, the nearer it will come to performing the functions of the ideal tire. Thus it may be said that the strength of the pneumatic tire lies in its weakness.

But in the practical tire the envelope must be made strong enough to carry the weight of the car and to withstand the abrasive action of the road. Therefore some resiliency must be sacrificed to make a practical tire. It is possible to combine a certain amount of resiliency with a certain amount of strength; but it is impossible to get all there is of both.

Whether the pneumatic tire is a success or failure depends upon what is expected of it. If a man, through inability to appreciate the situation, overloads his tires, sends his car at high speeds over all kinds and conditions of roads, in all kinds of weather, neglecting tire repairs, and yet expects good results, his expectations are not likely to be realized and to him pneumatic tires will be a failure. He has not used intelligence in the matter.

If, on the other hand, he loads his tires moderately, drives with reasonable care at all times, and, especially on bad roads, gives his tires the necessary attention, anticipates, perhaps, an occasional puncture, but still expects reasonably good service, he will probably not be disappointed, and will consider pneumatics a success.

A chemist buys a fragile glass vessel because he values certain qualities it possesses; but he knows that it must be gently handled or it will break. So with pneumatic tires; they are valuable for their good features, and their weaknesses must be respected as being inseparable from their strength. It is not reasonable for a man to apply undersized, badly fitting tires to a car, drive it regardless of consequences, and then expect good service from the tires. But if he uses good tires of the proper size, well fitted and gives them the requisite attention and consideration, he will obtain such results as human ingenuity and the use of the most suitable materials known to man can produce.

Let him not forget that pneumatics can be, and frequently are, punctured; but also let him not permit a puncture in, say, the sixtieth mile of a run to wholly obliterate the effect of the other fifty-nine miles of the most delightful motion known to man. Tires, like everything else about an automobile, must be used with intelligence in order to obtain the best results; and the man who uses the most intelligence is very likely to be the man who has the highest opinion of pneumatic tires.

BAD LAW REPLACES GOOD ONE IN NEW JERSEY.

TRENTON, N. J., April 16.—The Frelinghuysen automobile bill has been signed by Governor Stokes, and on July 1 its exacting conditions will replace the liberal law secured over a year ago mainly through the efforts of James B. Dill, W. E. Scarritt, W. F. Sadler, Jr., and other enthusiastic Jersey automobilists. The associated automobile clubs of New Jersey made a determined and partially successful effort that curbed, to some extent, the Frelinghuysen measure, though enough remains to make trouble for automobilists, and it will take away much of the pleasure of automobiling in this state.

The replacing of the so-called Dill law by its drastic successor unquestionably was brought about by the reckless scurrying across the state of unthinking and heedless New Yorkers and Philadelphians. That the law will be rigidly enforced in every particular in some parts of the state where the previous reasonable law was sadly abused is a certainty, and this will mean that many miles of excellent highway will be practically impossible except at a funeral pace.

The main points of the new law are herewith briefly outlined:

REGISTRATION.—The Frelinghuysen bill, as passed in its amended form, makes the Assistant Secretary of State the ex-officio Commissioner of Motor Vehicles, and places in his charge and supervision the enforcement of the provisions of the law. An Inspector of Motor Vehicles is to be appointed by the Secretary of State and provided with the necessary assistants. The Commissioner is authorized to designate the chief of police and his deputy of any municipality of the state, or any other proper person, to act as agent for the Commissioner for the registration of automobiles and issuance of certificates, the examination of applicants for driving licenses, and the granting of licenses.

FEE.—The registration fee for automobiles of less than 30 horsepower is fixed at \$3 a year, and for those of more than 30 horsepower, at \$5 a year. When the power is stated in hyphenated figures the greater figure is to be the basis of the fee. Upon the sale of a car to a second owner the registration certificate may be renewed upon payment of \$1. The fee for registration of motorcycles is \$1.

Manufacturers' and dealers' certificates, good for five cars, can be obtained upon payment of a fee of \$20, but the letter M must be displayed on the number tags affixed to the cars.

DRIVING LICENSES.—Driving licenses may be issued by the Commissioner, "at his discretion," to proper persons, sixteen years of age or more, after examination as to his knowledge of the machine and his ability to operate it safely, upon payment of a fee of \$1 for cars of less than 30 horsepower and of \$2 for cars of 30 horsepower or more. Permits to drive while learning to operate, when accompanied by a licensed operator, may also be issued to cover a period of three weeks. All drivers, however, are held liable for any damage they may do. Driving licenses may be refused at discretion to improper persons, and registration also may be refused to any machine that the Commissioner thinks is not a proper vehicle to be operated on the public highways.

REVOCATION OF CERTIFICATES.—To the Commissioner of Motor Vehicles is also given the arbitrary power of revoking registration certificates and driving licenses for a violation of the law, and no new license that may be issued to the same car or driver within a year shall be valid unless granted by the Commissioner in person.

REGISTRATION NUMBERS.—Registration numbers must be displayed at front and rear of the car, not less than fifteen inches nor more than thirty-six inches from the ground, and must be kept clean. The figures must be in Arabic numerals, not less than four inches high. It is prohibited to display any other number on the front or rear of the car, and registration tags of other states will not be recognized.

SPEED.—Speed is restricted to a maximum of a mile in three minutes (twenty miles an hour) in the open country, a mile in

four minutes within 200 feet of any horse or "other beast of draught or burden," except that any necessary speed up to twenty miles an hour may be lawful in passing a vehicle going in the same direction. The same four-minute limit applies at crossings in the open country, while speed at crossings in built-up places is restricted to a mile in five minutes. On sharp curves and at corners the rate must not exceed a mile in seven minutes. Upon signal from a person driving a horse by uplifting the hand, the automobilist must stop to let the horseman pass. All persons must drive with reasonable caution with regard to traffic at all times. Doctors and military authorities, however, are exempted from the foregoing speed restrictions. Should a driver cause an accident or injure any person he must stop at once and return to the scene of accident, and, if requested, give the names and addresses of all occupants of the car and registration and license numbers. Driving for a wager or bet is prohibited.

ARRESTS.—Arrests for violation of the law may be made without warrant, or upon warrants sworn out within thirty days of the commission of the act. More than half the text of the law pertains to proceedings in prosecution. Upon arrest, the automobile may be accepted as bail.

PENALTIES.—The penalty for failure properly to display the registration tags, and no other, is a fine of not less than \$20 nor more than \$100, and for a second offense the fine may be doubled. For displaying a fictitious number the penalty may be either a fine of from \$25 to \$500, or imprisonment for not exceeding sixty days, in the discretion of the court. Failure to return after an accident and give names will make the driver of a car liable to a fine of from \$25 to \$100, or to imprisonment for not more than thirty days.

Violation of the speed provisions will render a driver liable to a fine of \$25 to \$100 for the first offense, and double the fine or imprisonment for not more than thirty days, and, in addition, the revocation of his license.

GENERAL FEATURES.—Other clauses of the law prohibit the use of tire chains except when one inch or more of snow or ice covers the surface of the road, require two brakes on cars of more than 10 horsepower, a signal trumpet, two white lights in front and one red light in the rear, and the number of the registration certificate painted on the lamp glass in figures one inch high.

All money collected for licenses is to be used for road improvement, except that \$3,000 may be expended for the erection of guide posts and warning signs.

ALCOHOL BILL GOES TO SENATE.

WASHINGTON, D. C., April 16.—By a vote of 224 to 7 the National House of Representatives to-day passed the Free Alcohol bill. Mr. Payne, of New York, explained the provisions of the measure, stating that it provides that denatured domestic alcohol may be withdrawn from bond without the payment of an internal revenue tax for use not only in the arts and industries, but for fuel, light and power. The bill provides for its denaturing—that is, making it poisonous so that it cannot be used as a beverage or medicinal purposes.

ANOTHER RISE IN GASOLINE PRICES.

CLEVELAND, O., April 16.—To-day announcement was made by the Standard Oil Company of a further advance in the price of gasoline and refined oil of one-half cent per gallon. The new quotations which take immediate effect are: Ohio state test refined oil, 9 1-2 cents; water white Ohio state test, 10 1-2 cents; varnish-makers and painters' naphtha, 12 1-2 cents; deodorized stove gasoline, 13 1-2 cents; 74 to 76 degree gasoline, 16 1-2 cents; 80 degree gasoline, 19 1-2 cents; 87 degree gasoline, 20 cents; 88 degree gasoline, 21 cents.

L'HOMMEDIU BILL TANGLE.

ALBANY, N. Y., April 17.—President O. A. Quayle, of the New York State Automobile Association, and Secretary S. M. Butler, of the Automobile Club of America, last night had an interview with Senator L'Hommedieu and Speaker Wadsworth, the result of which was a thorough understanding concerning the L'Hommedieu bill, which passed the Senate Thursday last and reached the Assembly Friday in a bungled and unsatisfactory condition.

The bill in the first place as it passed the Senate was not amended by the senator from Orleans county to suit the automobilists, for the senator did not bother to put in the suggestions furnished by them. It was said at the hearing a couple of weeks ago that the direct tax imposed on a special class of vehicles which did no injury to highways, but rather benefited them, was unconstitutional. The highways are public and it is neither equitable nor just taxation to tax a motor vehicle and let a narrow-tired wagon go untaxed, and the Constitution requires that taxes shall be laid in an equitable and just manner. The auto owners were willing to be taxed if the fund raised thereby could be devoted to maintaining good roads, and so expressed themselves.

L'Hommedieu Was Forgetful.

It was proposed to have the L'Hommedieu bill redrawn so as to increase the registration fee now required for the registration of motor vehicles under the existing law. It was understood that Senator L'Hommedieu consented to this. A redraft was presented to him to take as a model or to incorporate bodily. He did neither and merely added a word or two to his old bill and rushed it through the Senate about the time the auto men discovered the scheme.

Meanwhile the general laws committee had blundered into an idiotic move which was both unnecessary and unwise. It reported as a substitute to the bill of A. E. Lee, which had been recommended to it for embalming, the L'Hommedieu auto-tax bill. There was no relevancy in the substitution. They were merely two bills amending different sections of the motor-vehicle law for entirely different purposes.

The L'Hommedieu bill was handed down to the Assembly Friday as a Senate message by Speaker Wadsworth, who started to refer it to the committee on taxation. He was interrupted by Mr. Draper, of Niagara, who moved to substitute it for the copy of the same bill which the general laws committee had substituted for the A. E. Lee bill regarding the stopping of autos when horses are encountered. A question arose among the members as to whether the two copies of the same bill were identical. A motion to send the two to the revision committee for comparison was made but never put by the Speaker. It was suggested that the substitution of the Senate bill for the regularly reported substitute might jeopardize it. The whole question was let in the air without action by the House or the Speaker and the next bill was taken up.

Now Will Contain Two New Ideas.

At the conference last night it was arranged that the L'Hommedieu bill would be amended by the Assembly Taxation Committee in accordance with the desires of the automobilists so as to provide for a registration fee instead of a tax. The amendments drawn up by Charles T. Terry after the hearing of a fortnight ago before the Senate Committee, and which were to have been included in the measure as it passed the Senate, will be incorporated in the Assembly bill, and also two additional features of some moment.

These new features are embodied in provisions for a reciprocal license or registration clause, whereby New York State shall not recognize the badges and licenses of any state which does not recognize the licenses and badges from this state. This will hit New Jersey first and foremost.

The other is a clause making it a misdemeanor for a chauffeur to take out an automobile without the consent of its owner, punishable by a fine of \$100 or imprisonment, or both.

President Quayle has an appointment to meet Chairman Wade, of the Assembly Tax Committee, to-day, and will present the redraft of the L'Hommedieu auto-tax bill which is desired as an amendment or substitute for that which the senator passed after he had agreed to amend it. It is expected that the committee will report the bill thus redrawn at its next meeting, to-day or to-morrow, so that it may be speedily passed through the Assembly and returned to the Senate for concurrence.

Gardiner Insurance Bill Impossible.

The Gardiner bill to permit automobiles to be insured anywhere they may be on a sort of Lloyds marine insurance plan will not get out of the Senate Insurance Committee, as it is so drawn as to mix up the fire insurance law and cover much more than automobiles.

FEATURES OF OHIO'S NEW LAW.

COLUMBUS, O., April 16.—Mayor Badger, of this city, has issued orders to the police department to enforce the city ordinances and statutes of Ohio regulating the speed of automobiles. He proposes to stop dangerous driving. In this position he has the support of the Columbus Automobile Club, which at all times has opposed reckless driving of machines, and whose every move has been for the welfare of automobiling.

The discovery has been made that the \$100,000 which the Sawicki automobile law will yield this year and next cannot be used for road improvement purposes as intended, until an act is passed specially appropriating the money for the purpose. The law says that this revenue shall be used for the betterment of the roads, but an enabling act is necessary to get the money out of the treasury. This the legislature overlooked, but the mistake was somewhat excusable, as the bill was not passed until the last hours of the session. Because of this the money will be tied up in the treasury until the next meeting of the legislature, a year from next January.

Though the law does not become effective until June 1, Secretary of State L. C. Laylin, who is charged with its enforcement, is being deluged with applications for licenses by owners and drivers. He is now preparing the necessary blanks on which applications will be made. General satisfaction is being expressed over the law by autoists, who believe it will promote the sport.

OFFICIAL REPORT FAVORS FREE ALCOHOL.

George E. Murray, inspector of combustibles of the Fire Department of New York City, after a ten days' investigation of the causes of the sewer explosions on Ninth avenue, has made a report to the fire commissioners in which he recommends that "the authorities unite to remove gasoline from use as a motive power in vehicles by removing the tax from alcohol, which, mixed freely with water, renders explosions impossible."

The report of the inspector explicitly states that he does not believe that waste gasoline from fifty or more garages, which are connected with the sewer, had anything to do with the sewer trouble. He thinks that the explosions were caused by gases accumulating from substances containing sulphureted hydrogen, light carbureted hydrogen and carbonic acid.

In his investigation Mr. Murray states that he found that the owners of automobile garages are too careful of gasoline to let it go to waste in a sewer. He found that in all garages the utmost vigilance was exercised to enforce economy in the use of gasoline. He recommends that each garage be obliged to build a cesspool to receive refuse grease, oil and used kerosene.

To prevent repetition of explosions in the sewers Mr. Murray would have all sewers flushed with gas-dispelling preparations and a gasoscope used to give automatic warning when gases have accumulated.

NEW YORK'S OPEN-AIR SHOW.

Plans are now being rapidly perfected for the open-air automobile show and carnival which will be held at the Empire City track May 24, 25, and 26, under the auspices of the New York Automobile Trade Association. The space under the grandstand, about 7,000 square feet, will be allotted to the accessories. Automobiles will be exhibited in two large tents in the infield, the largest of which will measure 110x205 square feet, giving 22,500 square feet of floor space. The second tent will supply 14,000 square feet. The price for space will be thirty cents a square foot, and the Trade Association will supply uniform signs, settees, or chairs in the space, the watchmen, and keep the exhibits in shape. The price for space under the grandstand to the accessory people will be twenty-five cents a square foot. All applications for space must be in the hands of the committee by Tuesday, May 8, and the allotments will be made by drawing on Thursday, May 10. Any profits will be divided, one-half to the treasury of the association, and one-half rebated to exhibitors who are members.

Arrangements are being made for a formal opening on Wednesday afternoon, May 24, with public officials and prominent automobilists in attendance. Thereafter the show will be open daily from 10 A. M. to 6 P. M. The carnival committee consists of William M. Haradon, chairman; Frank Eveland, and C. Andrade, with C. R. Mabley, president. Space diagrams and further particulars can be obtained by addressing Alfred Reeves, manager, 29 West Forty-second street, New York.

Massachusetts State A. A. Election.

Boston, April 16.—At the annual meeting of the Massachusetts State Automobile Association the following officers were elected: President, Elliot C. Lee; vice-president, Franklin Weston; secretary-treasurer, John C. Kerrison; legislative committee, Lewis R. Speare, chairman; good roads committee, John P. Coughlin, chairman; membership committee, W. H. Chase, chairman.

It was the opinion of those present at the meeting that the work for good roads should be continued, and that when the legislature passes the signboard bill of the association, it should at once begin the erection of the signboards, especially on the much traveled roads. The legislative committee was much praised for its efforts toward securing more liberal laws.

Erection of Signboards to Begin.

Within the next few weeks nearly 200 signboards will be placed along the roads chiefly frequented by automobile tourists between New York and Boston and New York and Philadelphia. The work of placing these boards is being done by the Automobile Club of America, in co-operation with the American Automobile Association, the first-named organization having appropriated \$2,000 for the purpose. Between New York and Philadelphia 60 signs will be used, and on the Boston route fully 150 will be placed. The work will be completed by June 1.

Ormond-Daytona Beach Railroad.

Permission has been asked of the Board of County Commissioners at DeLand, Florida, by C. S. Reiman, of Daytona, to lay railroad tracks between Daytona and DeLand. It is proposed to start the new line at Ormond, touch at Seabreeze, the clubhouse of the Florida East Coast Automobile Association, Daytona Beach, and continue to DeLand and Beresford Landing. If permission is granted for construction of the road gasoline passenger cars will be operated on it, affording frequent and direct transportation between Ormond and Daytona at next winter's Florida beach automobile tournament.

READVILLE RACES ON MAY 30.

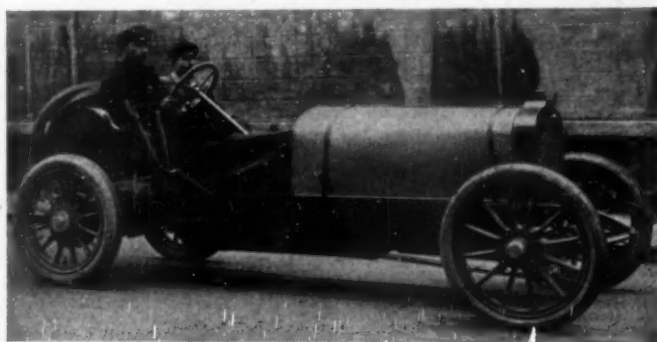
Boston, April 16.—Six events have been announced for the Readville track races on Memorial Day, May 30, by the race committee of the Bay State Automobile Association. There will also be several match races to be arranged later. The events already arranged are the ten-mile free-for-all, five-mile race for amateur owners and drivers, five-mile race for gasoline cars listed at \$1,000 and less, five miles for gasoline cars listed between \$1,000 and \$2,000, five miles for cars listed between \$2,000 and \$3,500, and a five-mile race for cars costing above \$3,500.

The committee has received assurances from a number of persons who own fast cars that they will enter them in the Readville races, and it may be that some of the prospective Vanderbilt Cup racers will be seen in Boston. The track has been secured and the committee is making plans for handling a record crowd.

Late Grand Prix News.

PARIS, April 10.—The first 1906 car to be tested on the Sarthe Circuit was the six-cylinder Bayard-Clement to be driven by Villemain. During the trials the car, which has a transmission by cardan, reached a speed of 96.34 miles an hour on the level.

Baras, on one of the Brasier cars, built specially for the race, ran round the course three times in succession the other day at high speed. The Trefle à Quatre driver declares the circuit ad-



CLEMENT-BAYARD RACER—VILLEMAIN AT WHEEL.

mirable and predicts an average speed of from 70 to 75 miles an hour for the winner of the race. Edmond, on his 1906 Renault, is also running trial trips on the circuit, and Gabriel of the De Dietrich team is expected this week.

Oldfield Among the Texans.

HOUSTON, TEXAS, April 16.—Three thousand people attended the automobile meet at the Houston Driving Park, on April 11, and saw Barney Oldfield send his Peerless *Green Dragon* against his mile record of 1:13 on a half-mile track. He negotiated the distance in 1:19.45, which was the fastest time Houston automobilists had ever seen, and they were enthusiastic. The three-mile match race, best two in three, between Oldfield and Paul Albert, was, of course, won by the former in two straight heats. In the local events S. Bering won the 3 1/2 mile in a Cadillac in 5:28, and John Foley won the two-mile novelty race. The two-mile handicap was won by Oldfield from scratch.

A. A. A. Will Recognize F. A. M. Suspensions.

In response to overtures made by the Federation of American Motorcyclists, the American Automobile Association has agreed that henceforth suspensions made by either organization will be respected and enforced by the other, which means that an automobilist punished by the American Automobile Association will not be permitted to compete as a motorcyclist nor drive a car at a motorcycle meeting, the same being true of the suspended motorcyclist who might seek refuge in the automobile ranks or attempt to ride in a motorcycle race at a "mixed" meeting.



**BAKER RUNABOUT THAT IS TRYING FOR MILEAGE RECORD.
A LIKELY MILEAGE WINNER.**

CLEVELAND, April 16.—Unless some of the club members get a remarkable hustle on, the Cleveland Automobile Club's mileage trophy, for the first quarter of the year at least, is likely to be won by a little colored man who drives an electric machine. He is not a member of the Cleveland Automobile Club, but Walter Baker, for whom he drives, is a member.

Last year the club cup was carried off by a driver who covered only about 7,000 miles. Mr. Baker, while not much of a mileage fiend himself, decided that he would like to have the trophy won this year with a Baker electric. He bethought himself of the little delivery runabout which carries small supplies to and from the factory and takes care of repair jobs for the several hundred electric vehicles about Cleveland and vicinity. The little wagon is on the go practically all the time, and will beat 7,000 miles by 100 per cent. or more, according to Mr. Baker.

LATEST AUTOMOBILE STAIR-CLIMBING FEAT.

The latest stair-climbing trick with an automobile was performed in San Francisco recently when George B. Woodward drove a 16-horsepower Reo touring car up a double flight of stone steps into Alamo Square and then drove down again. There are forty steps in the double flight and they form a grade estimated at 35 per cent. There is a level landing halfway up. The car ascended the first flight steadily and without a halt, then came to rest on the landing. Having gained confidence, Mr. Woodward started again and went up the second flight, then turned around and came down "head first," without stopping the engine. An interested crowd watched the performance.



16-H.P. REO CLIMBING STAIRS AT SAN FRANCISCO

GASOLINE TANK THAT STOOD THE TEST.

On the afternoon of March 23, fire broke out in the engine room of the Schaeffel Garage, in Rochester, N. Y., and rapidly spread through the entire building, which is used in part as a furniture warehouse, and as a livery stable in the south portion. In one part of the building several barrels of gasoline were piled up on the floor. These soon caught fire and added fuel to the flames. Where the fire was hottest, in the midst of the burning debris, were located a Bowser gasoline pump and a three-compartment lubricating oil cabinet. The gasoline was stored in an underground tank in the yard.



RUINS OF SCHAEFFEL GARAGE WITH UNINJURED TANK.

After the fire it was found that the entire equipment was in working order.

ACCIDENT STOPS WAYNE RUN.

An unfortunate accident on Thursday afternoon, April 12, about 3 o'clock, brought the New York non-stop run of the 50-horsepower Wayne to a sudden termination. Branch Manager A. L. Kull, however, has every reason to feel proud of the achievement of his car, as it reeled off 1,261 miles in 87 hours without a skip, which is said to be a new non-stop record.

The sudden termination of the run was in no way due to the car or its motor, but to a collision when the machine got into a jam of vehicles at Fifty-eighth street and Broadway and a



50-H.P. WAYNE—87 HOURS NON-STOP—1,261 MILES.

horse-drawn cab backed into the car and punched a five-inch hole into the radiator. Driver Rockford, who was in the car at the time, brought it back to the Wayne salesroom, without stopping the motor, but as the water was pouring out of the radiator it was only a question of time before the engine would heat up, and Mr. Kull regretfully gave the order to shut off power.

PHILADELPHIA TRADE.

PHILADELPHIA, April 16.—Quite a sensation was sprung along Automobile Row last week when it was announced that the Motor Shop, which handles the Royal Tourist, had taken over the local agency for the Oldsmobile. The Olds has so long been represented here by the Quaker City Automobile Company that the two had become almost synonymous. To make room for the additional space required Manager Gantert had a large force of men at work all last week making the necessary alterations in the repair plant and storage rooms.

This question of storage room in establishments along the "Row" is becoming a burning one. Very few concerns, even the largest, have any more space than they need, and as each new customer almost invariably wants to keep his car at the place where he buys it—indeed, insists upon such an arrangement as one of the terms of purchase—the condition of affairs is becoming interesting, to say the least. It is manifestly impossible just now, right in the heart of the season, to embark on any comprehensive scheme of rebuilding or alteration; yet not a few of the "Row" managers have been compelled to call in carpenters and make what temporary changes they can in order to take care of their patrons. Next fall and winter is likely to witness such a tearing out and rebuilding all along North Broad street as will cause the public's eyes to open, for managers and agents cannot afford to again be caught unprepared in this respect.

Complaints of the constant use of the smooth asphalt streets in the neighborhood of the several automobile schools by the inexperienced pupils of those institutions of learning—and to the detriment of the smaller children at play or going to or from school—are becoming frequent. These concerns are well within their rights, it appears, and, having paid for licenses and tags, are entitled to the use of the highways, when and where they please, so long as they keep within the legal limits of speed and obey the other regulations. Yet there is something to be said for the citizens whose children have been wont to play and skate on the streets, but who are now driven to the sidewalks by the constant procession of cars handled by future Tracys, Hemerys and Demogeots. The managements of all these concerns are making every effort to prevent accidents, and yet the complaints continue. The National Automobile School Company, at Oxford and Carlisle streets, for instance, has upward of 150 pupils enrolled, many of them women, and although in the early stages of their instruction they are accompanied by an expert, the advanced pupils are often allowed to go out alone, and these are the ones that usually cause the trouble—taking all sorts of chances and keeping the "honk! honk!" working overtime.

The local Locomobile branch house has just lost a good man in "Mile-a-Minute Phil" Williams, who has gone to Chester, Pa., to manage the Chester Automobile Company, which has just opened its quarters at Broad and Crosby streets. Besides doing a general repair and storage business the concern will handle the Cadillac car in Chester and near-by Delaware county.

The latest claimant for the favor of the Quaker City automobile contingent is the Pullman car, built by the York (Pa.) Motor Car Company, and which will be handled here by the Tioga Automobile Company, of Broad and Tioga streets. This concern also represents the National line in Philadelphia and adjacent territory.

A. J. Picard, manager of the local Rainier branch, selected Easter Monday for the official opening of the just completed quarters at 236 North Broad street. A large crowd of visitors inspected the new plant and the cars.

Manager Hoffman, of the Ford branch house at Broad and Buttenwood streets, will be assisted during the present season by Louis C. Block, one of the traveling representatives of the Ford Company.

Foss & Hughes, who represent the Pierce-Arrow, Cadillac and Baker electric cars in Philadelphia, have secured J. H. Fassett, a prominent local electric vehicle expert, to take charge of the Baker end of the outfit.

BOSTON SHOW WIND-UP.

BOSTON, April 16.—That famous organization, the Boston Show Company, has been dissolved by vote of the stockholders, taken at a meeting last week. It is safe to say that for the past two or three years nothing has caused so much discord among the Boston automobile dealers, or between the dealers and the manufacturers, as this same Boston Show Company. Formed a couple of years or more ago, when discord was rife among the dealers over the results of the first profitable Boston show, the show company clinched matters by securing a lease of Mechanics Building for automobile show purposes. This was the only building in Boston capable of housing the automobile show, so that the show company, whose members, by the way, were leading members of the Dealers' Association which ran the show, was able to dictate such terms as it wished to the Dealers' Association. The fact that certain dealers were drawing from the show profits as stockholders of the show company, members of the Dealers' Association and exhibitors, naturally caused some hard feeling.

As a result, when the show of 1905 was proposed, the manufacturers took a hand, and all sorts of things were threatened, including the withholding of a sanction, if some more equitable arrangement was not made for a division of the show profits. This agitation resulted in the admission to the show company of a considerable number of dealers, thereby greatly enlarging the show company. The company, however, still continued to hold the lease, and got a good share of the profits. But after the show was over the manufacturers looked to their branch managers who were in the company for their share of the show company's profits. The managers were not anxious to give up, and they did not until things were made so warm for them that they had to give up their profits to keep their places. This year the show company still had the lease, but it was decided that as all its members could not get a share of the profits it was no use keeping together. There was no friction over the 1906 show, though the lease had to be secured from the company.

Another thing which led to the dissolving of the company was the fact that many of its stockholders had ceased to be identified with the trade as agents or managers, but were drawing dividends just the same.

A Boston Trade Change.

BOSTON, April 16.—An important shift in local trade circles was consummated last week. This time, however, the disturbance is not among the branch managers, as has been the case in most of the recent shakeups, but among the agents. It consists of the merging with the Harry Fosdick Company, of the Robbins Brothers, of the Motor Mart, the representatives of the Waltham-Orient line. The Harry Fosdick Company was formed about a year ago with Harry Fosdick, formerly the Winton branch manager, and J. A. Dowling, formerly of Dowling & Maguire, agents for the Pierce, as the officers, with a capitalization of \$15,000. By the new arrangement Mr. Dowling retires from active connection with the firm, and will devote the larger part of his time to his Pierce agency in the northern New England States, with headquarters at Portland, Me. He will also be the Maine representative of the Harry Fosdick Company. With the retirement of Mr. Dowling, Harry Fosdick becomes president of the Harry Fosdick Company; Lincoln D. Robbins, treasurer, and Alfred N. Robbins, secretary.

The company will retain its present garage and office on Stanhope street, where Harry Fosdick will be general manager, but it will also have a retail branch in the Motor Mart in Park square, in the large salesroom beside the main entrance. This department will be in charge of Alfred N. Robbins, Lincoln D. Robbins becoming the mechanical expert. The company's capitalization has also been increased to \$25,000. At the present time the Harry Fosdick Company controls the agency for the Fiat, Studebaker line, Lozier, and Waltham-Orient line, and it is said that it will take on other agencies in the near future.

RACING RESULTS AT MONACO.

Advices by cable from Monaco state that critics received a rude shock by the victory of *Le Delahaye* in the 18-meter class Tuesday, April 10. She has a 400-horsepower Delahaye motor, and it had been claimed by experts that a big, slowly rotating motor had no practical future. She led from the start and beat out the *Le Dubonnet*, *Mercedes D. C.* and *Mercedes W. N.*, the last-named boat not finishing. The time was 1:18:04. In the 12-meter class, on the same day, the *Calypso*, 40-horsepower Mors motor, won in 1:28:28 from the *Delahaye-Nautilus* and *Excelsior*. The distance for both races was 50 kilometers.

The most important race of the Monaco meeting was run on Thursday, April 12. It is known as the championship of the sea and the distance 200 kilometers, about 125 miles. *Le Delahaye* again won in 4:20:12 from a field of 25 starters, with *Antoinette IV* second, *Fiat XIII* third, and *Yarrow-Napier* fourth. The *Fiat XIII* led almost from the start up to 180 kilometers.

The handicap events were run on Friday, April 13, and the work of the handicapping officials is reported to have been excellent. In the racers' event the *Yarrow-Napier* won, beating the *Seasick* by five seconds. Fournier handled the wheel of the *Seasick*, whose motor was of Itala make. The *Yarrow-Napier* had one minute handicap, which was just enough to enable her to win, though at times the *Seasick* was almost on even terms with her. Fournier was disappointed at not winning the race, but was consoled by the fact that he had beaten the record for fifty kilometers, his time being 1:04:08. The *Mercedes D. L.* was third, the *Mercedes W. N.* fourth and the *Volawvent* fifth. The cruisers' contest was won by the *Florentia IV*, with the *Calypso* second.

ATLANTIC CITY TOURNAMENT.

What should be the greatest straightaway race meet ever held in the North will take place at Atlantic City, N. J., April 25, 26 and 27, under the auspices of the Atlantic City Automobile Club. A grandstand capable of seating 8,000 people has been completed, the street railroad has made adequate arrangements, and the entire course will be roped off in such manner as to make accident impossible. In addition an army of policemen will be employed in guarding the course.

Such notable cars as the 80-horsepower Darracq which won the Vanderbilt Cup race and later the Havana Cup, the Thomas six-cylinder racer, the Grout steamer and the Mount Washington Napier are included in the high-speed events. Following is a list of the principal entries:

A. L. Kull, 40-h.p. Wayne; A. E. Schwartz, 50-h.p. Wayne; Edwin H. Cutherd, 8-h.p. Reo; Harry Haynes, 30-h.p. Grout steamer; Frank S. Walton, 30-h.p. Stoddard-Dayton; Montague Roberts, 50-h.p. Thomas; H. N. Harding, 30-35-h.p. Daimler; Al. Poole, 30-h.p. S. & M. Simplex; C. M. Hamilton, 30-h.p. S. & M. Simplex; Jonathan N. Wilkins, Jr., 40-h.p. Winton; Charles J. Swain, 40-h.p. Winton; R. B. Craufurd, 50-h.p. Stevens-Duryea; Mrs. Joan Newton Cuneo, 10-h.p. Maxwell and 18-h.p. White; H. Ernest Rogers, 20-h.p. Stanley; W. C. Mullen, 50-h.p. Thomas; William Wallace, Jr., 80-h.p. Darracq; G. H. MacWilliam, 80-h.p. Darracq; Walter E. Edge, 20-32-h.p. Darracq; P. F. Rockett, 30-h.p. Stoddard-Dayton; William H. Hilliard, 80-h.p. Napier; James E. Bristol, 40-45-h.p. Pierce; Joseph D. Swoyer, 35-h.p. Daimler; Harry Kerr, 24-h.p. Packard, and the Reo Bird.

\$5,000,000 FOR GOOD ROADS.

ALBANY, April 16.—As a result of several conferences of the good roads advocates of this state, the legislature will appropriate \$5,000,000 this year for good roads under the \$50,000,000 bond issue for this purpose approved by the people last fall. This is viewed with considerable favor by the good roads advocates, as they had not asked for a definite sum and the liberality is appreciated. The West bill provides that the money shall be apportioned according to the population and the use of roads.

VANDERBILT CUP ENTRIES.

Entries for the Vanderbilt Cup race, to be run on October 6 next, mainly over the same course on Long Island that was used last year, are already being received by the Cup Commission, although the entry blanks have not yet been printed. The first entry was made by Col. A. A. Pope as last year, the car being a Pope-Toledo, which was entered through the Automobile Club of America. No particulars have been given regarding the car, but it is generally believed to have six cylinders that will develop 90 horsepower. The entry was accompanied by a check for \$1,000 to cover the fee decided upon at the last meeting of the Commission.

The second entry was made by Messrs. Breese, Moulton and Lawrence, three young men of socially prominent and wealthy families of Long Island, who have nominated a four-cylinder car of their own design and construction, which is said to be of 80 horsepower. The name *Pirate* has been given to the machine, which was exhibited in the Automobile Club of America show in New York last January.

Almost simultaneously with the preceding entry was received the entry of a regular model 60-65-horsepower Matheson touring car by the Matheson Motor Car Company of New York.

Announcement has also been made by the Olds Motor Works that it will build a six-cylinder racer to compete for the cup. President F. L. Smith, of the company, when in New York a few days ago, said that he had every confidence in the ability of Howard Coffin, chief engineer of the Olds factory, to turn out a creditable racer, and that every mechanical and financial facility would be given him. Ernest Keeler, who will probably be nominated to drive the car in the race, has made several trips in an Olds 28-30-horsepower, four-cylinder car over the roads of Long Island over which it is thought the race may be run, and, from observations made, he thinks some phenomenal times will be made in the elimination race.

GEN. GRANT DID NOT RIDE.

WILMINGTON, DEL., April 16.—It was expected that Wilmington would have its first real automobile demonstration last Monday, on the occasion of a visit from Gen. Frederick D. Grant, of New York, who came here to present to the Fourth Delaware Regiment Association, on behalf of the National Flag Association, a handsome American flag, but, unfortunately, rain fell in torrents nearly all day and the plans of the committee had to be changed so as to cut out the automobile features to have been conducted by the Wilmington Country Club.

The Wilmington authorities are making war on outsiders who come here and violate the automobile law. A few days ago a Philadelphia banker was here in his auto and a policeman said he was riding too fast, as a result of which he was fined \$40, although it was stated, on behalf of the banker, that he did not appear to some people to be exceeding the speed limit.

THE ENGLISH 4,000-MILE TRIAL.

March 31 witnessed the close of the 4,000-mile tire, lamp, and speedometer trials, arranged by the Automobile Club of Great Britain and Ireland, and run on the roads around London during the month of March, the running time being 25 days in all. A brief official summary of the results follows: Twenty-horsepower Dennis, non-stop throughout except on first day, when gasoline filter choked up at 85½ miles; Collier tires, 36-inch and 34-inch, non-stop on 22 days, 815 mm. non-stop on 23 days; tail lamps, Ryta & Houet, went out only five times during entire run; Worsnop headlights, burned well, but unfortunately suffered from pipe obstruction. The speedometers were tested over 2,000 miles, one lot running the first and the remainder the second half of the trials. The Elliott, Jones, Gratre, and Cowey made non-stop records throughout.

OMAHA'S FIRST SHOW.

OMAHA, April 14.—Omaha's first automobile show which was held April 4 to 7 was a marked success. It attracted a great deal of attention in this part of the West, more than 10,000 persons visiting the Auditorium, where it was held. This is the largest building of its kind in the city but the interior was filled and made attractive by the display of several hundred thousand dollars' worth of cars, appropriate pictures and decorations. There was orchestra music and moving pictures reproduced scenes in famous automobile races.

The local dealers were well pleased with the results. During the show they sold more than \$40,000 worth of vehicles and entered into negotiations for many additional sales. Interest in the show seemed to develop spontaneously. Agents say the show firmly established Omaha as a distributing center for automobiles and supplies and created an interest that will make the city one of the best automobile towns in the West.

Eastern manufacturers pleased the local people a great deal by spending considerable money in sending high-grade cars here and experts to discourse regarding them to the visitors.

The Omaha Automobile Dealers' Association was organized for the primary purpose of holding the show, with the following officers and members: Clark G. Powell, president; H. E. Fredrickson, treasurer; Frank W. Bacon, R. R. Kimball, J. Clarke Coit, T. M. Bromwell, J. J. Deright, J. M. Gillan and R. C. Doziera.

Exhibits were made by the Powell-Bacon Company, showing the Baker electrics, White steamer, Pope-Toledo, Cadillac and the Franklin; H. E. Fredrickson, showing the Thomas, Peerless, Haynes, Buick and Woods electric; R. R. Kimball, exhibiting the Stanley steamer, Stevens-Duryea and Columbia electric; the Rambler Automobile Company, showing a complete line of Ramblers, and the Deright Automobile Company, with the Stoddard-Dayton, Reo, Maxwell and Waverley electric cars.

One of the novelties of the show was a gasoline truck manufactured by the Karbach Automobile and Vehicle Company, of Omaha, and the first output by this firm.

The Reo company exhibited its Baby Reo, and a Haynes model of 1889, said to be the first automobile to appear on Omaha streets, was shown by H. E. Fredrickson.

The fact that every car shown in the Rambler exhibit was sold indicates the business done at the show. One of the sales made was to L. W. Monk, of Orleans, Neb., who will try the automobile in stage line work between Orleans and Phillipsburg, Neb. A Cadillac car was bought by Reed Bros., of Omaha, for use in their real estate business. A great many of the sales were to residents of smaller cities and towns throughout Nebraska and Iowa, but a fair proportion is accredited to Omaha.

ELECTION OF T. P. A. OFFICERS.

At the recent second annual meeting and banquet of the Technical Publicity Association, held at the Aldine Association, New York, the following officers were elected: President, F. H. Gale, of the General Electric Company; first vice-president, H. M. Cleaver, of the Niles-Bement-Pond Company; second vice-president, C. B. Morse, Ingersoll-Rand Company; secretary, Rodman Gilder, Crocker-Wheeler Company; treasurer, H. M. Davis, Sprague Electric Company; members of the Executive Committee, Robt. L. Winkley, Pope Mfg. Company and G. M. Basford, American Locomotive Works; members Election Committee, C. W. Beaver, Yale & Towne Mfg. Company; Chas. N. Manfred, H. W. Johns-Manville Company and H. H. Kress, A. S. Cameron Steam Pump Works.

P. F. Kobbe, former president of the Association and now an advertising specialist, was the guest of the evening and gave an address on the general subject of advertising. An informal discussion followed in which members and guests took part.

The membership of the Association shows a steady increase, and its finances are in good condition. The following resolution was unanimously passed: **RESOLVED**, That the Association shall take active steps to secure definite information regarding the circulation of mediums in which the members of the Association are interested.

A MARYLAND ASSOCIATION.

BALTIMORE, April 16.—The Maryland Motor Exhibition Association was formed in this city last week with the following officers: President and general manager, B. R. Johnson; vice-president, Howard W. Gill; treasurer, A. S. Zell; secretary, E. L. Buchanan. The fifth incorporator was R. J. Atkinson, and these five also compose the board of directors.

Mr. Johnson was general manager of the automobile show which closed here on April 7. Mr. Gill is a member of the Motor Car Company, in whose garage the show was held, and Mr. Zell is his associate in the enterprise. Messrs. Buchanan and Atkinson are in the firm of Callahan, Atkinson & Co., agents for the Pope-Toledo and Locomobile. All of the last four named men have been identified with automobile racing since its inception here, and Mr. Buchanan holds the present State records, for a half-mile track, from one to ten miles.

The association is to hold automobile, auto boat and motorcycle races in this part of Maryland. Three motor boat races are planned for the summer and the automobile and cycle meets will occur once a week, with special events at night. Three tracks are being considered, and there is a possibility that the association will build its own oval. The water course will be over the Patapsco River, which is well adapted for the purpose. The first automobile meet will be held on May 30.

HOOSIER SHOW PLANS SPOILED.

INDIANAPOLIS, April 16.—It is improbable that this city will have an automobile show in keeping with its size until a building large enough to accommodate it is erected. The proposed fall outdoor show and race meet fell through because the fair grounds were not large enough to build a two-mile track, thought to be necessary as an extra inducement, and the proposed spring show will probably not materialize because there is no building large enough in which to hold it.

Tomlinson Hall, the only building to be considered in the city, has long since fallen short of the demands of the city. It was built about twenty years ago and there is no provision for getting anything so large as an automobile into the hall.

Plans for a local show now seem to be bent toward an exhibition of some kind at the fair grounds during the State Fair in September.

STORY ABOUT JOHN WILKINSON.

An interesting bit of history was brought to light recently. Two traveling salesmen happened to meet in the office of the H. H. Franklin Mfg. Co., of Syracuse, and in talking over the early days of the automobile industry, one related the following incident as indicative of the change of sentiment and the spread of the Franklin four-cylinder idea:

"I was traveling in the interests of a roller bearing concern and stopped at Syracuse to call on the Stearns people, who were then laboring away with the steam proposition. After finishing my business, I said: 'Now is there any one else in Syracuse manufacturing automobiles?' My customer hesitated a moment and then replied: 'There is a fellow by the name of Wilkinson who is building a little car here. He is making a four-cylinder gasoline machine and, would you believe me, he is really trying to cool it by air.' Well, when I see that old customer of mine I always ask him in a joking way if John Wilkinson is still making a four-cylinder car and is really trying to cool it by air."

THIS IS DENVER SHOW WEEK.

DENVER, April 14.—All is in readiness for the automobile show which opens in this city on Wednesday, April 18, and from indications this undertaking of the local promoters will be the most successful in the history of the association. Features galore have been planned and many surprises are in store. The decorative scheme for the Denver exhibition will be copied from the Chicago and New York shows. In former years it has been customary to allow each exhibitor to array his space as he saw fit, but now the management has taken upon itself the task of decorating uniformly, artistically and more effectively. A gasoline car built by the Flint-Lomax Company, Denver, will be on exhibition.

News and Trade Miscellany.

The Norris Auto Company of Saginaw, Mich., has voted to increase its capital stock from \$12,000 to \$25,000.

An Italian car, the Bianchi, will hereafter be handled in New York by the Snutsel Auto Supply Company, at 1534 Broadway.

The New York agency of the Duquesne automobiles has been removed from 112 East Seventy-fifth street, to 306 West Fifty-second street.

The Darracq Automobile Company, of New England, has established its headquarters in the new Motor Mart, Park Square, Boston.

The Twentieth Century Automobile Company will represent the Grout automobile in Chicago, and will be located after May 1 at 1421 Michigan avenue.

After May 1 the George J. Scott Motor Car Company, New York agents for the Glide automobile, will be in new quarters at Broadway and Fifty-first street.

A Boston branch, with Allyn A. Stillman as manager, has been opened at 92 Massachusetts avenue, near Boylston street, by the Mercedes Importing Company of New York.

Manager W. E. Eldredge, of the Buick agency in Boston, has fitted up a new salesroom in the Tremont garage, that city, with offices adjoining and a modern equipped repair department in the basement of the garage.

An automobile jack patented by W. H. Burtner, Jr., of Cincinnati, is to be the special product of the Medeau Manufacturing Company, of that city, for which Mr. Burtner has secured articles of incorporation in Ohio.

The Adams-Sutton Company, 16 Columbus avenue, Boston, agents for the Oldsmobile, have been forced by increasing business to lease another floor in that portion of the new Motor Mart in which they are located.

Franklin cars will hereafter be sold in the Hawaiian Islands by O. E. Hall & Son, at Honolulu. Arrangements were recently made with this concern whereby the Franklin will be extensively advertised and sold throughout the islands.

President Benjamin L. Jones, of the Macon (Ga.) Automobile Club, is negotiating with the H. H. Franklin Mfg. Co., of Syracuse, N. Y., for a 90-horsepower racing machine. Houghton Woodman, who drives for Mr. Jones, will manipulate the levers.

The city of Madison, Wis., is anxious to secure the location there of the Pollock Automobile Wrench Company, of Galesburg, Ill., which is seeking a new location. The company desires facilities permitting the employment of fifty workmen, turning out 1,000 wrenches a day.

The Auto Tire Repairing Co. was recently organized in Columbia City, Ind., and installed a 2,100-pound vulcanizer with which it is vulcanizing tires under a new process invented by A. T. Mosher. The company is receiving considerable work from Fort Wayne and surrounding territory.

One hundred men are working overtime at the big Aerocar factory at Mack avenue and the Belt Line Railroad, in Detroit, Mich. The air-cooled cars are being shipped at the rate of one a day and the prospects at present are that the output will be tripled in a short time. Reports from the agencies are most satisfactory.

Requiring more space on account of a large increase in their business, the R. E. Hardy Company, maker of the Sta-Rite

and other automobile accessories, has moved from 225 West Broadway to 80 Watts street, New York City, where nearly twice as much floor space as was previously occupied has been obtained.

An ordinance has passed the Chicago City Council which provides that no garage shall be erected in any block in which buildings on both sides of the street are used for residence purposes without the written permission of a majority of the property owners. Alderman K. K. McCormick was the author of the bill.

"Spring painting" is the title of the latest pamphlet issued by the Joseph Dixon Crucible Company, of Jersey City. In it is given valuable suggestions for automobile owners who contemplate refinishing their cars and doing other kinds of painting incidental to the springtime. Copies are mailed free to inquirers on application.

F. Rothschild, the Parisian builder of automobile bodies, has established an American factory at 530 West Twenty-seventh street, New York City, where he has forty men at work under a French superintendent. The business is in process of incorporation by M. J. Rothschild, son of the house, under the home title of Rothschild et Cie. J. R. Chisholm, who at one time imported the Decauville car, is interested in the business management.

H. Carter, of the Carter Motor Car Co., is completing arrangements in Detroit for the manufacture of Carter friction-drive cars for exportation by the Carter International Motor Car Co., of which he is president and general manager. A variety of cars will be produced, it is reported, including runabouts, touring cars, delivery wagons, trucks, ambulances, patrol wagons and special fire engines. Mr. Carter has disposed of his patents to the Carter Motor Car Co. and will devote his time to the export business.

After May 1 the Hartford Suspension Company will be located in its new building at Broadway and Eighty-eighth street, and the factory will be moved from Hudson street to the corner of Clarkson and West streets. This will give three times the present floor space and will permit better care to be taken of the Truffault-Hartford suspension business, which is increasing at a rapid pace. The Gobron-Brillie cars, for which the company is the agent in America, are due in two weeks, from the other side, fitted with French bodies.

Harlan W. Whipple, the well-known automobilist of Boston, has placed an order for a 35-horsepower Rainier, with touring body, to be finished in French gray. Other recent purchasers of 35-horsepower Rainiers are Robert Patterson, president of the National Cash Register Company; J. A. Culbertson and Frank M. Wright. Charles Lanier has taken delivery of a special 35-horsepower Rainier chassis, built to order, and which is now being fitted with a luxurious limousine body with all modern conveniences, by Healy.

The power boat show, which was held last week in the First Regiment Armory, Chicago, was a success in every sense of the word, and aroused great interest in motor boats. Many boats were shown from the fast craft to the little skiff. One of the boats was equipped with an automobile steering wheel, and is fitted out with padded seats like an automobile. It has a 40-horsepower engine, and is very speedy. Several fast boats were shown, some of which have figured prominently in races. Among

them were the *Black Diamond 11*, the *Violet Louise* and the *Kangaroo*.

The Hartford Automobile Parts Company has been incorporated under Connecticut laws to manufacture and deal in high grade automobile parts. Officers have been elected as follows: President and treasurer, E. A. Daruol, Hartford; secretary, A. J. Drougnel, Hartford; vice-president and manager, F. H. Bogart, of New Britain. An office has been opened at 438 Asylum street, Hartford, where sufficient space has been secured, together with power, to accommodate the present needs of the company. The policy will be to produce only high grade goods of the best materials and workmanship, and to maintain this high standard in everything sold under the "Hartford" trade name. The first product of the company will be a new type of universal or Cardan joint, on which patents are now pending.

PERSONAL TRADE BREVITIES.

Herbert K. Lerick, for the past four years sales manager of the Central Automobile Company of New York, has accepted a similar position with the Frayer-Miller Motor Car Company in the New York store.

E. W. Roberts, of Clyde, O., the well-known gas engine expert, is reported to be interested in the organization of a new company to manufacture automobiles at Toledo, O., the motors to be of the two-cycle type.

John Kerwin, representing the mechanical department of the Franklin Company, is making an extended trip throughout the southern states which will take him as far south as Tampa, Fla., from which town he will cross to Havana, Cuba, and Merida, Yucatan, returning by way of Mexico City and Dallas, Texas.

Percy Owen, long and favorably known in trade circles, and for a number of years identified with the Winton interests, more recently as manager of the New York branch of that company, has resigned his position to accept that of Eastern sales manager for the Aerocar Company, of Detroit, with headquarters at Seventy-third street and Broadway, New York City. Mr. Owen has achieved a reputation at home and abroad by driving a Winton in various races and touring contests. He is one of the charter members of the Automobile Club of America, and was the first president of the New York Automobile Trade Association, and more recently its treasurer. He carries the good wishes of his many friends with him in his new business connection.

RECENT WINTON CHANGES.

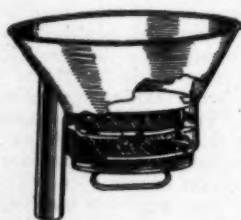
Harry L. Owsney has been appointed western supervisor for the Winton Motor Carriage Company with headquarters at Chicago.

C. W. Churchill, assistant manager of the Cleveland branch of the Winton Motor Carriage Company, has been appointed manager of the Winton New York branch house, to succeed Percy Owen, resigned. Mr. Churchill had just been appointed the Winton company's eastern supervisor when Mr. Owen's resignation was received, giving the company an opportunity to promote him still further in recognition of excellent work in his Cleveland capacity. As New York branch manager, Mr. Churchill will have supervision of the erection of the new Winton branch at Broadway and 70th street, New York, which, when completed, will be the largest and finest retail automobile establishment in America. Mr. Churchill's successor in Cleveland has not yet been appointed.

INFORMATION FOR BUYERS.

FIRST AID OUTFIT.—A neat and compact case containing the proper medicants and means for affording immediate relief in case of burns, cuts and bruises is put up for the use of automobilists by the United States Emergency Case Company, of Utica, N. Y. It is highly important that proper antiseptic measures be taken in case of cuts and lacerations, and for the purpose of dressing such wounds the case contains a pair of scissors, antiseptic dressing, antiseptic lint, antiseptic waterproof liquid court plaster, absorbent cotton and bandages. There is also ointment for burns, and various other articles. These are carefully packed in a light metal case in airtight receptacles that will keep them fresh for an indefinite period. In the case is also a booklet on "First Aid to the Injured." It is a valuable outfit to carry in the car at all times.

CHAMPION FILTER FUNNEL.—This is a strainer for separating water and dirt from gasoline constructed on a new principle and placed on the market by the Iver Johnson Sporting Goods Company, of Boston. It is called the Champion Filter Funnel and operates by the action of gravity. The gasoline first runs to the bottom of the strainer, then rises through the filter, as indicated by the arrows in the illustration, and goes out



CHAMPION FILTER FUNNEL.

the opposite side of the funnel into a pipe conveyor leading to the tank. All water and dirt remain at the bottom, which can be easily unscrewed and cleaned. It will be noticed that the gasoline is filtered upwards and not downwards. This insures removal of water for a certainty, as it will fall to the bottom of the funnel under the strainer, if the funnel is kept upright in position.

STEEL BELT.—Sometimes the overheating of cylinders and bearings is due to the slipping of the leather belt which runs the oil pump, for if the belt slips the efficiency of the pump is impaired, and improper lubrication results. The Philadelphia Ornamental Wire Company has introduced the Powco steel belt, an article designed to eliminate these troubles. This belting is made from a wonderfully tough and durable steel wire, is as pliable as leather, but, according to its makers, will not stretch or break, and is very easy running. An instance cited in proof of this is a test recently made. A 23-inch Powco steel belt was used over a 41-inch run for 60 days and when taken off for examination it was found not to have stretched a fraction and was in every way as good as new. The manufacturers guarantee every belt that they turn out to be as represented.

ELECTRIC CIGAR LIGHTER.—Automobilists who smoke will be interested in this novelty, an illustration of which we present in connection with this article. Not only is it serviceable for lighting a cigar or pipe by a push of the button while the car is running, but if you remove the plug and put in a lamp (which comes with it), you have an electric light as well as a lighter, to use to

look your machine over in case of trouble. The device works four volts, and can be used on the sparking set of any touring car. If you have a six-volt battery you can con-



CIGAR LIGHTER.

nect it upon two of the cells. It can also be connected up on two of the cells of any electric machine. It is made by the Rochester Automobile Company, of Rochester, N. Y.

SCREWS AND BOLTS.—For more than two years the electric welding process has been applied to screw manufacture by the Cleveland Cap Screw Company, of Cleveland, Ohio. By this process the stems and heads are cut from different bar stock, of the same quality, in automatic machines. The heads and stems are then placed in the welding machine and held firmly by copper vises, which are clamped to gun-metal platens. These platens are moved on steel ways by hydraulic pressure. The sections to be welded are brought together, completing the circuit, and the current is then allowed to pass through the sections until they are brought to a welding heat, at which time a greater pressure is applied, forcing the two together, expelling any possible slag or deteriorated metal and forming up a burr, which is then milled down by special machinery. The blanks are threaded by special machinery also, the entire process resulting in the utmost accuracy in the size, alignment and thread of the screw. Combinations of brass, copper, Tobin bronze and Muntz metal to steel and of brass to brass and bronze to bronze can also be made.

IGNITION BATTERIES.—Rex "Igniters" are manufactured by the New England Motor Co., of Lowell, Mass., and are put up in all the usual size—40, 60 and 80 ampere-hour capacities, and 4, 6 and 8 volts. The elements are of the pasted type, the active material being applied to grids made of a non-oxidizable alloy. The composition used in mixing the active material for the positives produces a very dense peroxide having no

local action, so that abnormal lasting qualities are secured. In many instances batteries have been operated from April to October, in launches, without recharging, it is asserted. The elements are assembled in hard rubber compartment jars, thoroughly sealed, with hard rubber covers and vents. Valves to prevent sloppeage are a feature of this battery, and have proved a great convenience. Compartment cells of another type are made up of individual hard rubber jars, assembled in a hardwood box with a shock-absorbing medium between the rubber and the wood.

Another innovation by the New England Motor Company is the placing on the market of a line of storage units. These consist of small hard rubber jars which are thoroughly sealed and furnished with valves and terminals. The user can purchase any desired number, and place them in his auto or launch just the same as dry cells. A number of advantages follow, for example: It sometimes happens that a person may have bought a 4-volt outfit, and afterward find that a 6-volt would be preferable. In order to get what is wanted by the



REX IGNITION BATTERY.

method he would have to discard his old set and purchase another unit of the proper capacity. Or an accident may have happened to one cell. If in a set, the whole set is spoiled; but on the unit system he can buy another unit to take the place of the imperfect one, at about one-third of the cost.

RUNNING GEAR.—H. F. Borbein & Co., 3109 N. Ninth street, St. Louis, Mo., have just brought out the side-chain-drive running gear for trucks, illustrated herewith. This running gear is designed to carry 3,800 pounds above the axles. Front and rear axles are 2 inches square with roller-bearing spindles. The frame is made of 5-inch channel iron, 40 inches wide and 14 feet long. Springs are 21-4 inches wide, seven



BORBEIN SIDE-CHAIN DRIVE RUNNING GEAR FOR HEAVY TRUCKS.

leaves in front and eight leaves in the rear. Wheels are of the artillery pattern with steel hubs, 2-inch hickory spokes and wide wood felloes, with channels for 4 by 36-inch solid rubber tires. The rear wheels have sprockets with brake drums rigidly attached. The sprockets are cut for 11-2 by 5-8-inch roller chain, with thirty-four teeth. The countershaft has a heavy bevel gear, with horizontal drive shaft. The steering device is of the worm and gear sector pattern, which is positive and gives no back lash. Tread is 60 inches. These truck running gears are made with any size of frame and any height of wheels; also with a live rear axle for single chain drive, and the frame is made with or without sub-frame, as desired.

The Borbein Company has brought out a coupé body for the trade. It is designed for physicians. It is 36 1-2 inches wide and 107 inches long at the bottom. The distance between the extreme front part and the main body is 22 inches. It has a lid on top of the rear part. These bodies are furnished in the white with one coat of lead paint, or with bevel edge glass, painted and upholstered in dark green or black leather, diamond tufting with silk spring roller curtains. This body was made to take a fancy metal hood.

NEW TRADE PUBLICATIONS.

NEW YORK SPORTING GOODS CO., 17 Warren street, New York.—Catalog of 64 pages, containing illustrations, brief descriptions and prices of a complete line of standard automobile accessories and supplies. It shows the latest goods, both domestic and foreign, now in the market. This latest issue of the company's catalogue is designated No. 34, and can be obtained by writing to "Department M," at the above address.

MATHESON MOTOR CAR CO., Wilkes-Barre, Pa. (The Matheson Co., 1619 Broadway, New York, selling agent).—Twenty-four-page art catalogue showing superior half-tone illustrations of the Matheson touring

car in the chassis, and fitted with runabout, touring, and limousine bodies. Also views of the engine from four sides. As a new product is shown the Matheson five-ton truck. Printed in black, with headings and borders in orange; cover of lavender color, as for several years past.

CENTURY AUTO-POWER CO., East Orange, N. J.—Sixteen-page catalogue calling attention of steam car users and persons who contemplate building their own cars to the Century system of flash steam generation with a kerosene burner, as applied to runabouts, touring cars, light and heavy commercial vehicles, launches, yachts, and for stationary purposes. Illustrated with half-tone engravings from photographs of seamless tube generator; boiler and burner complete, thermostat, packingless throttle, and gauges.

LOCOMOBILE COMPANY OF AMERICA. Bridgeport, Conn.—A superior catalogue of unusual merit, illustrating and describing in minute detail the mechanical features of the 1906 Locomobile cars. It is free from generalities and absurd claims and contains much real information about these cars. An interesting feature is the historical introduction reviewing the performances of the Locomobile in the endurance run of 1902 to Boston, the New York-Pittsburg run of 1903, the Glidden tour last year and in the 1905 Vanderbilt Cup race.

TRADE NOTES.

The Lubeck Automobile Company, of Grand Rapids, Mich., has incorporated with a capital of \$15,000.

The Reo Car Company, of Lansing, Mich., has filed amended articles of incorporation, changing the name of the concern to the Reo Motor Car Company.

The Grand Rapids police department has announced an intention of warring on automobile drivers who overrun the speed limit and that the "cycle cops" will again go into commission.

At the request of the E. H. V. Company, of Middletown, Conn., the Massachusetts Institute of Technology made a test of a

motor of the type used in the compound cars. The institute granted a certificate of high efficiency to the company on the results of the test. Every detail in the manufacture of Compound cars is said to be carried out at the Middletown factory.

Roy Chapin, formerly sales manager of the Olds Motor Works, has been spending the past month in Southern California, at Los Angeles. He is considering entering the trade as a manufacturer of cars on his return East.

Among the buyers of Lozier cars during the past week were A. Krower and Charles Kaye, of this city, and Henry L. Hotchkiss, of New Haven. Millard F. Smith, who has had a Lozier limousine since last September, has secured a 40-horsepower Lozier touring car.

A \$90,000 addition to its plant in Detroit is the latest move of the Packard Motor Car Company, which will build two new buildings, one to be 480x63 feet, and the other 248x63 feet. Each building will be two stories high, and when completed will furnish employment for 500 additional hands.

"What Owners Say about National Cars" is the title of a little 64-page booklet just issued by the National Motor Vehicle Company, of Indianapolis, Ind. The National people shipped about 200 cars last season and there are 58 duplicate letters in the book mentioned above, from National owners who used Model C touring cars during 1905. The company feels that it has a very fair percentage of highly satisfied customers, considering the size of its output.

The Maxwell-Briscoe Motor Car Company has been making an estimate of the floor space in its various factories at Pawtucket, R. I., Tarrytown, N. Y., and Chicago. The total space is considerably in excess of 255,000 square feet, without the inclusion of vast platform and yard space at Chicago. This, it is estimated, is still 150,000 square feet less than the company needs to carry forward the work of making Maxwell cars now under order. Additional facilities will be provided at an early date.

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